

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 14,9 d
Edition : 13.05.87
Replaces : 12.9.86
Test oil : ISO-4113

Combination no. : 0 402 048 702

Injection pump
Pump designation : PES8P120A32ORS3146
EP type number : 0 412 028 702
Governor
Governor design. : RQ275/950PA753
Governor no. : 0 421 801 282

Customer-spec. information
Customer : RVI

Engine : MIVR083530

1st version kW : 294.0
Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
: (3.45...3.65)
Rack travel in mm : 9.00...12.00
Firing order : 1- 8- 4- 2- 7- 3-
6- 5

Phasing : 0-45-90-135-180-225-
270-315

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 500

Rack travel in mm : 12.70...12.80

Del. quantity cm³/ : 20.8...21.0

100 s: (20.5...21.3)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 7.9...8.1

Del. quantity cm³/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 950

Rack travel in mm : 16.60...18.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 500

Aneroid pressure h: 700

Del. quantity : 208.0...210.0

1000 : (205.0...213.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 950

Rack travel in mm : 17.4

Testing:

1st rack travel in: 10.50

Speed rpm : 1000...1015

2nd rack travel in: 4.50
Speed rpm : 1070...1100
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 8.0

Testing:

Speed rpm : 200
Minimum rack travel: 6.70
Speed rpm : 275
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 330...370

TORQUE CONTROL

Dimension a mm : 0.58
Torque control curve - 1st version
1st speed rpm : 500
Rack travel in m: 12.70...12.80
2nd speed rpm : 950
Rack travel in m: 11.40...11.50
3rd speed rpm : 675
Rack travel in m: 12.40...12.60
4th speed rpm : 810
Rack travel in m: 11.70...12.00

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 12.70...12.80

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.50...9.70
2nd pressure hPa : 360
Rack travel in m: 12.70...12.80
3rd pressure hPa : 140
Rack travel in m: 10.30...10.70

START CUT-OUT

Speed 1/min : 195 (215)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 950

Del.quantity cm³/ : 190.0...194.0
1000 s: (187.0...197.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 119.0...121.0
1000 s: (116.0...124.0)

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 160.0...180.0
1000 s: (156.0...184.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 4.60...4.80
Del.quantity cm³/ : 17.0...23.0
1000 s: (14.0...26.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

Start-of-delivery mark 11.5° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SSC 13,7 a
Edition : 30.05.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 048 706

Injection pump
Pump designation : PES8P120A520/4RS3211
EP type number : 0 412 028 706
Governor
Governor design. : RQV300...1250PA639-1
Governor no. : 0 421 813 458

Customer-spec. information
Customer : SSCM

Engine : UD 18-V18

1st version kW : 394.0
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 1- 2- 6- 3- 4- 5-
7- 8

Phasing : 0-45-90-135-180-225-
270-315
Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 13.30...13.40

Del. quantity cm3/ : 19.9...20.1

100 s: (19.6...20.4)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 8.1...8.3

Del. quantity cm3/ : 2.0...2.6

100 s: (1.7...2.9)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.30...1.50

2nd speed rpm : 1000
travel mm : 5.70...6.00

3rd speed rpm : 1250
travel mm : 7.80...8.00

GUIDE SLEEVE POSITION

Speed rpm : 1305
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1250
Del. quantity : 199.0...201.0
1000 : (196.0...204.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 59...67

Testing:
1st rack travel in: 12.30
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1415...1445
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 13...21

Testing:
Speed rpm : 100
Minimum rack travel: 9.70
Speed rpm : 300
Rack travel in mm : 8.10...8.30
Rack travel in mm : 2.00

CONSTANT REGULATION
Speed rpm : 350...460

START CUT-OUT

Speed 1/min : 220 (240)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.30
Speed rpm : 1290...1300

INTERMEDIATE RATED SPEED
Rack travel in mm : 4.00

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 230.0...250.0
1000 s: (226.0...254.0)

Remarks:

:

APPLICATION

Navy

A04

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 9,4 a13
 Edition : 24.8.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 058 038
 Injection pump
 Pump designation : PES8P100A921/SRS286
 EP type number : 0 412 008 025
 Governor
 Governor design. : RQV300...1300PA308KR
 Governor no. : 0 421 815 102

Customer-spec. information
 Customer : IHC

Engine : DVT 800

1st version kW : 257.6
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 040

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 004

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 9 681 230 713

Outside diameter
 x Wall thickness
 x Length mm : 6,35x2,00x1016

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY

A05

Prestroke mm : 2.70...2.80
 : (2.65...2.85)
 Rack travel in mm : 10.50
 Firing order : 1-8-4-2-7-3-6-5

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 12.15...12.25

Del. quantity cm3/ : 13.8...14.0

100 s : (-)

Spread cm3 : 0.4

100 s : (-)

2nd speed rpm : 300

Rack travel in mm : 4.90...5.10

Del. quantity cm3/ : 1.6...2.0

100 s : (-)

Spread cm3 : 0.3

100 s : (-)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h : 800

Del. quantity : 138.0...140.0

1000 : (-)

Spread cm3 : 4.0

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 62...70

Testing:

1st rack travel in: 11.20

Speed rpm : 1340...1350

2nd rack travel in: 3.65

Speed rpm : 1505...1535

4th rack travel in: 1640

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 6...14

Testing:

Speed rpm : 100
Minimum rack trave: 7.00
Speed rpm : 300
Rack travel in mm : 4.10...6.20
Rack travel in mm : 1.45
Speed rpm : 490...510
Speed rpm : 580
Maximum rack trave: 1.10

TORQUE CONTROL

Dimension a mm : 1300
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 12.20...12.30
2nd speed rpm : 900
Rack travel in m: 11.70...11.80
3rd speed rpm : 700
Rack travel in m: 11.20...11.30

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 800
Pressure hPa : 160
Rack travel mm : 8.40...8.50

Measurement

Speed 1/min : 800

1st pressure hPa : 613
Rack travel in m: 11.70...11.80

START CUT-OUT

Speed 1/min : 170...230

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800
Speed rpm : 900
Del.quantity cm3/ : 132.0...138.0
1000 s: (-)
Spread cm3 : 4.0
1000 s: (-)
Aneroid pressure h: -
Speed rpm : 800
Del.quantity cm3/ : 89.0...97.0
1000 s: (-)
Spread cm3 : 4.0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20
Speed rpm : 1340...1360

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 188.0...228.0
1000 s: (-)
Rack travel in mm : 21.00

Remarks:

Start-of-delivery mark is at start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 9.4 a12
 Edition : 24.8.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 058 039
 Injection pump
 Pump designation : PES8P100A921/SRS286
 EP type number : 0 412 008 025
 Governor
 Governor design. : RQV300...1300PA309KR
 Governor no. : 0 421 815 101

Customer-spec. information
 Customer : IHC

Engine : DVT 800

1st version kW : 245
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 040

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 004

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 9 681 230 713

Outside diameter
 x Wall thickness
 x Length mm : 6,35X2,00X1016

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2.70...2.80
 : (2.65...2.85)
 Rack travel in mm : 10.50
 Firing order : 1-8-4-2-7-3-6-5

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.25...11.35

Del. quantity cm3/ : 12.9...13.1

100 s: (-)

Spread cm3 : 0.4

100 s: (-)

2nd speed rpm : 300

Rack travel in mm : 4.90...5.10

Del. quantity cm3/ : 1.7...2.3

100 s: (-)

Spread cm3 : 0.6

100 s: (-)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 800

Del. quantity : 129.0...131.0

1000 : (-)

Spread cm3 : 4.0

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 62...70

Testing:

1st rack travel in: 10.30

Speed rpm : 1340...1350

2nd rack travel in: 3.65

Speed rpm : 1505...1535

4th rack travel in: 1640

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 6...14

Testing:

Speed rpm : 100
Minimum rack travel: 7.00
Speed rpm : 300
Rack travel in mm : 4.10...6.20
Rack travel in mm : 1.45
Speed rpm : 490...510
Speed rpm : 580
Maximum rack travel: 1.10

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1300
Rack travel in m: 11.30...11.40
2nd speed rpm : 900
Rack travel in m: 11.30...11.40

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 206.6
Rack travel mm : *

Measurement

Speed 1/min : 500

1st pressure hPa : 519.8
Rack travel in m: **

START CUT-OUT

Speed 1/min : 170...230

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800
Speed rpm : 900
Del. quantity cm³/ : 127.5...133.5
1000 s: (-)
Spread cm³ : 4.0
1000 s: (-)
Aneroid pressure h: -
Speed rpm : 800
Del. quantity cm³/ : 103.0...111.0
1000 s: (-)
Spread cm³ : 4.0
1000 s: (-)

BREAKAWAY

1st version

A08

1mm rack travel less than

full load rack tr: 10.30
Speed rpm : 1340...1360

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 170.0
1000 s: (-)
Rack travel in mm : 21.00

Remarks:

Start-of-delivery mark is at start of
delivery of cylinder 1

* Start of LDA (manifold-pressure
compensator) movement

** Ende der LDA-Bewegung

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 9,4 a11
 Edition : 24.8.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 058 040
 Injection pump
 Pump designation : PES8P100A921/5RS286
 EP type number : 0 412 008 025
 Governor
 Governor design. : RQV300...1300PA304KR
 Governor no. : 0 421 815 099

Customer-spec. information
 Customer : IHC

Engine : DVT 800

1st version kW : 220.8
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 040

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 9 681 230 713

Outside diameter
 x Wall thickness
 x Length mm : 6,35X2,00X1016

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY

Prestroke mm : 2.70...2.80
 : (2.65...2.85)
 Rack travel in mm : 10.50
 Firing order : 1-8-4-2-7-3-6-5

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.15...10.25

Del. quantity cm3/ : 11.4...11.6

100 s : (-)

Spread cm3 : 0.3

100 s : (-)

2nd speed rpm : 300

Rack travel in mm : 4.90...5.10

Del. quantity cm3/ : 1.7...2.1

100 s : (-)

Spread cm3 : 0.3

100 s : (-)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 800

Del. quantity : 114.0...116.0

1000 : (-)

Spread cm3 : 3.0

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 62...70

Testing:

1st rack travel in: 9.20

Speed rpm : 1340...1350

2nd rack travel in: 3.65

Speed rpm : 1505...1535

4th rack travel in: 1640

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 6...14

Testing:

Speed rpm : 100
Minimum rack trave: 7.00
Speed rpm : 300
Rack travel in mm : 4.10...6.20
Rack travel in mm : 1.45
Speed rpm : 490...510
Speed rpm : 680
Maximum rack trave: 1.10

TORQUE CONTROL

Dimension a mm : 1300
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 10.20...10.30
2nd speed rpm : 900
Rack travel in m: 10.40...10.60
3rd speed rpm : 700
Rack travel in m: 10.10...10.30

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 133
Rack travel mm : *

Measurement

Speed 1/min : 500

1st pressure hPa : 506.5
Rack travel in m: **

START CUT-OUT

Speed 1/min : 170...230

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800
Speed rpm : 900
Del.quantity cm3/ : 118.0...124.0
1000 s: (-)
Spread cm3 : 4.0
1000 s: (-)
Aneroid pressure h: -
Speed rpm : 800
Del.quantity cm3/ : 84.0...88.0
1000 s: (-)
Spread cm3 : 4.0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20
Speed rpm : 1340...1360

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 184.0...224.0
1000 s: (-)
Rack travel in mm : 21.00

Remarks:

y y **FEHLENDEN TEXT ÜBERSETZEN** y y

* Start of LDA (manifold-pressure
compensator) movement

** Ende der LDA-Bewegung

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 9,4 a10
 Edition : 24.8.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 058 041
 Injection pump
 Pump designation : PES8P100A921/SRS286
 EP type number : 0 412 008 025
 Governor
 Governor design. : RGV300...1300PA305KR
 Governor no. : 0 421 815 100

Customer-spec. information
 Customer : IHC

Engine : DVT 800

1st version kW : 20.6
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 040

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 004

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 9 681 230 713

Outside diameter
 x Wall thickness
 x Length mm : 6,00X1,50X1016

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2.70...2.80
 : (2.65...2.85)
 Rack travel in mm : 10.50
 Firing order : 1-8-4-2-7-3-6-5

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1300

 Rack travel in mm : 9.50...9.60

 Del. quantity cm3/ : 10.7...10.9

 100 s : (-)

Spread cm3 : 0.4

 100 s : (-)

2nd speed rpm : 300
 Rack travel in mm : ?
 Del. quantity cm3/ : 1.5...2.1
 100 s : (-)
 Spread cm3 : 0.6
 100 s : (-)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1300
 Aneroid pressure h : 800
 Del. quantity : 107.0...109.0
 1000 : (-)
 Spread cm3 : 4.0
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 62...70

Testing:
 1st rack travel in: 8.50
 Speed rpm : 1340...1350
 2nd rack travel in: 3.65
 Speed rpm : 1505...1535
 4th rack travel in: 1640
 Speed rpm : 0.00...1.00

LOW IDLE 1
 Control lever

position degrees: 6...14

Testing:

Speed rpm : 100
Minimum rack trave: 7.00
Speed rpm : 300
Rack travel in mm : 4.10...6.20
Rack travel in mm : 1.45
Speed rpm : 490...510
Speed rpm : 580
Maximum rack trave: 1.10

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 9.50...9.60
2nd speed rpm : 850
Rack travel in m: 11.80...12.00
3rd speed rpm : 700
Rack travel in m: 10.40...10.60

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 200
Rack travel mm : *

Measurement

Speed 1/min : 500

1st pressure hPa : 600
Rack travel in m: **

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800
Speed rpm : 850
Del.quantity cm3/ : 128.0....134.0
1000 s: (-)
Spread cm3 : 5.0
1000 s: (-)
Aneroid pressure h: -
Speed rpm : 800
Del.quantity cm3/ : 83.0...91.0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.50
Speed rpm : 1340...1350

A12

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 187.0...227.0
1000 s: (-)
Rack travel in mm : 21.00

LOW IDLE

Speed rpm : 300
Del.quantity cm3/ : 15.0...21.0
1000 s: (-)
Spread cm3 : 6.0
1000 s: (-)

Remarks:

y y **FEHLENDEN TEXT ÜBERSETZEN** y y

* Start of LDA (manifold-pressure
compensator) movement

** Ende der LDA-Bewegung

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,7 k
 Edition : 30.8.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 076 005
 Injection pump
 Pump designation : PES6P100A720RS1010
 EP type number : 0 412 006 004
 Governor
 Governor design. : RSV400...1050P2/370D
 R
 Governor no. : 0 421 835 046

Customer-spec. information
 Customer : JOHN DEERE

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 1 680 750 015
 Outside diameter
 x Wall thickness
 x Length mm : 6,00x1,50x600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY

Prestroke mm : 2.40...2.50
 : (2.35...2.55)
 Rack travel in mm : 10.50
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-160-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

A13

1st speed rpm : 1050
 Rack travel in mm : 12.75...12.85
 Del. quantity cm³/ : 14.8...15.0
 100 s : (-)

Spread cm³ : 0.3
 100 s : (-)

2nd speed rpm : 400
 Rack travel in mm : 6.60...6.80
 Del. quantity cm³/ : 1.9...2.5
 100 s : (-)
 Spread cm³ : 0.3
 100 s : (-)

GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -3

Speed rpm : 1000
 Rack travel in mm : 0.20...1.20

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050
 Aneroid pressure h: 800
 Del. quantity : 148.0...150.0
 1000 : (-)
 Spread cm³ : 3.0
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 34...42

Testing:
 1st rack travel in: 11.80
 Speed rpm : 1085...1095
 2nd rack travel in: 4.50
 Speed rpm : 1135...1165
 4th rack travel in: 1260
 Speed rpm : 0.30...1.50

LOW IDLE 1
 Control lever
 position degrees: 13...21
 Setting point w/out bumper spring
 Speed rpm : 400
 Rack travel in mm : 6.20

Testing:

Speed rpm : 200
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 7.10...7.30
Rack travel in mm : 2.80
Speed rpm : 590...610
Speed rpm : 750
Maximum rack travel: 1.50

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050
Rack travel in m: 12.80...12.90
2nd speed rpm : 750
Rack travel in m: 13.60...13.80
3rd speed rpm : 500
Rack travel in m: 13.60...13.80

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 550
Pressure hPa : 186.6
Rack travel mm : *

Measurement

Speed 1/min : 550

1st pressure hPa : 526.5
Rack travel in m: **

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800
Speed rpm : 750
Del.quantity cm³/ : 164.5...167.5
1000 s: (-)
Spread cm³ : 4.0
1000 s: (-)
Aneroid pressure h: -
Speed rpm : 550
Del.quantity cm³/ : 108.0...116.0
1000 s: (-)
Spread cm³ : 4.0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.80
Speed rpm : 1085...1095

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 160.0...190.00
1000 s: (-)
Rack travel in mm : 21.00

HIGH IDLE

1st version

Speed rpm : 1155
Rack travel in mm : 5.80...6.00
Del.quantity cm³/ : 24.0...32.0
1000 s: (-)
Spread cm³ : 4.0
1000 s: (-)

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6.60...6.80
Del.quantity cm³/ : 19.0...25.0
1000 s: (-)
Spread cm³ : 3.0
1000 s: (-)

Remarks:

* Start of LDA (manifold-pressure compensator) movement

** Ende der LDA-Bewegung
Start-of-delivery mark is at start of delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,7 k 3
 Edition : 24.8.89
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 076 006

Injection pump
 Pump designation : PES6P100A720RS1010
 EP type number : 0 412 006 004
 Governor
 Governor design. : RSV400...1050P2/367D
 R
 Governor no. : 0 421 835 045

Customer-spec. information
 Customer : JOHN DEERE

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6,00x1,50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.40...2.50
 : (2.35...2.55)

Rack travel in mm : 10.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-160-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

A15

1st speed rpm : 1050

Rack travel in mm : 12.45...12.55

Del. quantity cm³/ : 14.1...14.3

100 s : (-)

Spread cm³ : 0.3

100 s : (-)

2nd speed rpm : 400

Rack travel in mm : 6.60...6.80

Del. quantity cm³/ : 2.0...2.6

100 s : (-)

Spread cm³ : 0.3

100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3

Speed rpm : 1000

Rack travel in mm : 0.20...1.20

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 800

Del. quantity : 141.7...143.7

1000 : (-)

Spread cm³ : 3.0

1000 : (-)

RATED SPEED

1st version

Control lever
 position degrees: 34...42

Testing:

1st rack travel in: 11.50

Speed rpm : 1085...1095

2nd rack travel in: 4.50

Speed rpm : 1135...1165

4th rack travel in: 1260

Speed rpm : 0.30...1.50

LOW IDLE 1

Control lever
 position degrees: 13...21

Setting point w/out bumper spring

Speed rpm : 400

Rack travel in mm : 6.60

Testing:

Speed rpm : 200
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 7.00...7.20
Rack travel in mm : 2.75
Speed rpm : 590...610
Speed rpm : 750
Maximum rack travel: 1.20

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 12.50...12.60
2nd speed rpm : 750
Rack travel in m: 13.30...13.50
3rd speed rpm : 500
Rack travel in m: 13.30...13.50

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 550
Pressure hPa : 186.6
Rack travel mm : *

Measurement

Speed 1/min : 550

1st pressure hPa : 526.5
Rack travel in m: **

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800
Speed rpm : 750
Del. quantity cm³/ : 159.0...162.0
1000 s: (-)
Spread cm³ : 4.0
1000 s: (-)

Aneroid pressure h: -
Speed rpm : 550
Del. quantity cm³/ : 108.0...116.0
1000 s: (-)
Spread cm³ : 4.0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50
Speed rpm : 1085...1095

A16

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 160.0...190.00
1000 s: (-)
Rack travel in mm : 21.00

HIGH IDLE

1st version

Speed rpm : 1155
Rack travel in mm : 5.90
Del. quantity cm³/ : 25.0...35.0
1000 s: (-)
Spread cm³ : 4.0
1000 s: (-)

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6.60...6.80
Del. quantity cm³/ : 20.6...26.6
1000 s: (-)
Spread cm³ : 3.0
1000 s: (-)

Remarks:

* Start of LDA (manifold-pressure compensator) movement

** Ende der LDA-Bewegung
Start-of-delivery mark is at start of delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,7 k 2
Edition : 24.8.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 076 011

Injection pump
Pump designation : PES6P100A72ORS1010
EP type number : 0 412 006 004
Governor
Governor design. : RSV400...1050P7/413D
R
Governor no. : 0 421 835 073

Customer-spec. information
Customer : JOHN DEERE

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6,00x1,50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2.35...2.45
: (2.30...2.50)
Rack travel in mm : 10.50
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-160-240-300
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

A17

BASIC SETTING

1st speed rpm : 1040

Rack travel in mm : 13.05...13.15

Del.quantity cm³/ : 14.8...15.0

100 s : (-)

Spread cm³ : 0.3

100 s : (-)

2nd speed rpm : 400
Rack travel in mm : 7.00...7.20
Del.quantity cm³/ : 1.6...2.0
100 s : (-)
Spread cm³ : 0.3
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...1.00

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1040
Del.quantity : 148.8...150.8
1000 : (-)
Spread cm³ : 3.0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 35...43

Testing:
1st rack travel in: 12.10
Speed rpm : 1065...1075
2nd rack travel in: 4.90
Speed rpm : 1095...1125

LOW IDLE 1

Control lever
position degrees: 13...21
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 6.70

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 460
Rack travel in mm : 6.60...6.80
Rack travel in mm : 2.00
Speed rpm : 450...500

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1040
Rack travel in m: 13.10...13.20
2nd speed rpm : 750
Rack travel in m: 13.60...14.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm3/ : 163.5...166.5
1000 s: (-)
Spread cm3 : 4.0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.10
Speed rpm : 1065...1075

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 170.0
1000 s: (-)
Rack travel in mm : 21.00

HIGH IDLE

1st version

Speed rpm : 1155
Rack travel in mm : 5.90
Del.quantity cm3/ : 25.0...35.0
1000 s: (-)
Spread cm3 : 4.0
1000 s: (-)

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6.60...6.80
Del.quantity cm3/ : 20.6...26.6
1000 s: (-)
Spread cm3 : 3.0
1000 s: (-)

Remarks:

Start-of-delivery mark is at start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 10,1 d9
Edition : 24.08.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 076 027
Injection pump
Pump designation : PES6P100A72ORS296
EP type number : 0 412 016 037
Governor
Governor design. : RSV400...1050PO/414D
R
Governor no. : 0 421 835 071

Customer-spec. information
Customer : JOHN DEERE

Engine : 6619 A

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 457 413 010

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6,00x1,50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,75...2,85
: (2,70...2,90)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050
Rack travel in mm : 12,80
Del. quantity cm3/ : 18,7...18,8
100 s : (-)
Spread cm3 : 0,4
100 s : (-)
2nd speed rpm : 400
Rack travel in mm : 6,80
Del. quantity cm3/ : 1,9...2,5
100 s : (-)
Spread cm3 : 0,4
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050
Aneroid pressure h: 800
Del. quantity : 187,4...189,4
1000 : (-)
Spread cm3 : 4,0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 35...43

Testing:
1st rack travel in: 11,80
Speed rpm : 1095...1105
2nd rack travel in: 5,90
Speed rpm : 1135...1165

LOW IDLE 1
Control lever

position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 6,30

Testing:

Speed rpm : 100
Minimum rack travel: 19,004
Rack travel in mm : 6,70...6,90
Rack travel in mm : 2,00
Speed rpm : 520...530

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 680
Rack travel in m: 12,80
2nd speed rpm : 500
Rack travel in m: 13,15...13,25

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 550
Pressure hPa : 382,0
Rack travel mm : 10,65...10,75

Measurement

Speed 1/min : 550

1st pressure hPa : 634,0
Rack travel in m: 12,10...12,70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800
Speed rpm : 630
Del. quantity cm³/ : 192,8...196,8
1000 s: (-)
Spread cm³ : 6,0
1000 s: (-)

Aneroid pressure h: -
Speed rpm : 550
Del. quantity cm³/ : 112,0...120,0
1000 s: (-)
Spread cm³ : 6,0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11,80
Speed rpm : 0195...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 170,0
1000 s: (-)
Rack travel in mm : 19,00...21,00

HIGH IDLE

1st version

Speed rpm : 1150
Rack travel in mm : 5,90
Del. quantity cm³/ : 47,0...57,0
1000 s: (-)
Spread cm³ : 6,0
1000 s: (-)

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6,80
Del. quantity cm³/ : 19,0...25,0
1000 s: (-)
Spread cm³ : 4,0
1000 s: (-)

Remarks:

Start-of-delivery mark at control-rod travel 10.5 mm and 15° after start of delivery.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 10,1 h
 Edition : 24.08.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 076 029
 Injection pump
 Pump designation : PES6P110A72ORS337
 EP type number : 0 412 016 044
 Governor
 Governor design. : RSV400...1050PO/416D
 R
 Governor no. : 0 421 835 074

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6619 T

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...43
 Overflow valve
 : 1 457 443 014

Inlet press., bar : 1.5

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
 x Wall thickness
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Freestroke mm : 2,75...2,85
 : (2,70...2,90)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0,50 (0,75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

 Rack travel in mm : 10,20

 Del. quantity cm³/ : 13,5...13,7

 100 s : (-)

 Spread cm³ : 0,4

 100 s : (-)

 2nd speed rpm : 400
 Rack travel in mm : 6,00
 Del. quantity cm³/ : 2,1...2,7
 100 s : (-)
 Spread cm³ : 0,4
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050
 Aneroid pressure h : 800
 Del. quantity : 135,0...137,0
 1000 : (-)
 Spread cm³ : 4,0
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 35...43

Testing:
 1st rack travel in: 9,20
 Speed rpm : 1095...1105
 2nd rack travel in: 9,20
 Speed rpm : 1090...1110

LOW IDLE 1
 Control lever

position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5,50

Testing:
Speed rpm : 100
Minimum rack travel: 19,00
Speed rpm : 400
Rack travel in mm : 5,90...6,10
Rack travel in mm : 2,00
Speed rpm : 520...580

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 750
Rack travel in m: 10,20
2nd speed rpm : 630
Rack travel in m: 10,70

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 246,5
Rack travel mm : 9,85...9,95

Measurement
Speed 1/min : 500

1st pressure hPa : 373,2
Rack travel in m: 10,30...10,50

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 800
Speed rpm : 630
Del.quantity cm³/ : 145,0...149,0
1000 s: (-)
Spread cm³ : 6,0
1000 s: (-)
Aneroid pressure h: -
Speed rpm : 550
Del.quantity cm³/ : 113,6...121,6
1000 s: (-)
Spread cm³ : 6,0
1000 s: (-)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9,20

A22

Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : <190,0
1000 s: (-)
Rack travel in mm : 19,00...21,00

HIGH IDLE

1st version
Aneroid pressure h: 800
Speed rpm : 1150
Rack travel in mm : 6,20
Del.quantity cm³/ : 45,0...55,0
1000 s: (-)
Spread cm³ : 6,0
1000 s: (-)

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6,00
Del.quantity cm³/ : 20,8...26,8
1000 s: (-)

Remarks:

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1 with control-rod travel = 10.50 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 10,1 d3
 Edition : 28.07.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 076 030
 Injection pump
 Pump designation : PES6P110A72ORS296
 Governor
 Governor design. : RSV400...1050P7/419D
 R

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6619 A

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve
 : 1 457 413 010

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6,00x1,50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,75...2,85
 : (2,70...2,90)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0,5 (0,75)

A23

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1040

 Rack travel in mm : 12,80

 Del. quantity cm3/ : 18,8...19,0

 100 s : (18,6...19,2)

 Spread cm3 : 0,4

 100 s : (-)

 2nd speed rpm : 400
 Rack travel in mm : 6,30
 Del. quantity cm3/ : 1,90...2,50
 100 s : (-)
 Spread cm3 : 0,4
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050
 Del. quantity : 188,0...190,0
 1000 : (186,0...192,0)
 Spread cm3 : 4,0
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 56...64

Testing:
 1st rack travel in: 11,80
 Speed rpm : 1060...1070
 2nd rack travel in: 5,00
 Speed rpm : 1095...1125

LOW IDLE 1

Control lever
 position degrees: 20...28

Testing:
 Speed rpm : 100
 Minimum rack travel: 19,00

Speed rpm : 400
Rack travel in mm : 6,30
Rack travel in mm : 2,00
Speed rpm : 450...500

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1040
Rack travel in m: 11,80
2nd speed rpm : 680
Rack travel in m: 11,80
3rd speed rpm : 500
Rack travel in m: 12,10...12,30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 630
Del.quantity cm3/ : 193,0...197,0
1000 s: (191,0...199,0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11,80
Speed rpm : 1060...1070

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 170,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1100
Del.quantity cm3/ : 18,00...28,00
1000 s: (-)

LOW IDLE

Speed rpm : 400
Del.quantity cm3/ : 19,0...25,0
1000 s: (-)

Remarks:

Start-of-delivery mark is at 15°
angular displacement of the cam after
start of delivery at cylinder 1 with
control-rod travel 9.00...12.00 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 l 3
Edition : 02.08.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 076 N031
Injection pump
Pump designation : PES6P110A720RS305
Governor
Governor design. : RSV400...1050P7/420D
R

Customer-spec. information
Customer : JOHN DEERE

Engine : 6466 A

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 457 413 010

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness : 6,00x2,00x600
x Length mm

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Prestroke mm : 2,78...2,85
: (2,70...2,90)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1040
Rack travel in mm : 11,70
Del. quantity cm³/ : 15,7...15,9
100 s : (15,5...16,1)
Spread cm³ : 0,4
100 s : (-)
2nd speed rpm : 400
Rack travel in mm : 6,00
Del. quantity cm³/ : 1,9...2,5
100 s : (-)
Spread cm³ : 0,4
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1040
Del. quantity : 157,0...159,0
1000 : (155,0...161,0)
Spread cm³ : 4,0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 56...64

Testing:
1st rack travel in: 10,70
Speed rpm : 1065...1075
2nd rack travel in: 5,00
Speed rpm : 1095...1125

LOW IDLE 1

Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 6,30

Testing:

Speed rpm : 100
Minimum rack trave: 19,00
Speed rpm : 400
Rack travel in mm : 6,20...6,40
Rack travel in mm : 2,00
Speed rpm : 450...500

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 650
Rack travel in m: 12,30
2nd speed rpm : 1040
Rack travel in m: 11.70

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 650
Del.quantity cm3/ : 169,0...173,0
1000 s: (167,0...175,0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10,70
Speed rpm : 1065...1075

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130,0
1000 s: (-)

HIGH IDLE

1st version
Speed rpm : 1100
Del.quantity cm3/ : 17,0...27,0
1000 s: (-)

LOW IDLE

Speed rpm : 400
Del.quantity cm3/ : 19,0...25,0
1000 s: (-)

Remarks:

Start-of-delivery mark = 13.25° after
start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 10,1 a8
 Edition : 24.08.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 076 032
 Injection pump
 Pump designation : PES6P110A720RS296
 EP type number : 0 412 016 037
 Governor
 Governor design. : RSV400...1050P0/426D
 R
 Governor no. : 0 421 835 082

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6619 A

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 457 413 010
 Inlet press., bar : 1.5
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 9 681 230 706
 Outside diameter
 x Wall thickness
 x Length mm : 6,00X2,00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,75...2,85
 : (2,70...2,90)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0,50 (0,75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050
 Rack travel in mm : 12,20
 Del. quantity cm3/ : 17,2...17,4
 100 s : (-)
 Spread cm3 : 0,4
 100 s : (-)
 2nd speed rpm : 400
 Rack travel in mm : 6,80
 Del. quantity cm3/ : 1,9...2,5
 100 s : (-)
 Spread cm3 : 0,4
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050
 Del. quantity : 172,0...174,0
 1000 : (-)
 Spread cm3 : 4,0
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 36...44

Testing:
 1st rack travel in: 11,20
 Speed rpm : 1095...1105
 2nd rack travel in: 5,90
 Speed rpm : 1135...1165

LOW IDLE 1

Control lever
 position degrees: 15...23

Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 6,30

Testing:

Speed rpm : 100
Minimum rack trave: 19,00
Speed rpm : 400
Rack travel in mm : 6,70...6,90
Rack travel in mm : 2,00
Speed rpm : 520...580

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 630
Rack travel in m: 12,60

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 273,2
Rack travel mm : 9,65...9,75

Measurement

Speed 1/min : 500

1st pressure hPa : 526,5
Rack travel in m: 11,30...1,90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm3/ : 177,0...180,0
1000 s: (-)
Spread cm3 : 6,0
1000 s: (-)
Speed rpm : 550
Del.quantity cm3/ : 84,0...92,0
1000 s: (-)
Spread cm3 : 6,0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11,20
Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 170,0
1000 s: (-)
Rack travel in mm : 19,00...21,00

HIGH IDLE

1st version

Speed rpm : 1150
Rack travel in mm : 5,90
Del.quantity cm3/ : 47,0...57,0
1000 s: (-)
Spread cm3 : 6,0
1000 s: (-)

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6,80
Del.quantity cm3/ : 19,0...25,0
1000 s: (-)
Spread cm3 : 4,0
1000 s: (-)

Remarks:

Start-of-delivery mark at control-rod
travel 10.5 mm and 15° after start of
delivery.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 10.1 d4
Edition : 28.07.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 076 033
Injection pump
Pump designation : PES6P110A72ORS296
Governor
Governor design. : RSV400...1050PO/428D
R

Customer-spec. information
Customer : JOHN DEERE

Engine : 6619 A

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 457 413 010
Inlet press., bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening
pressure, bar : 172...175
Test lines : 1 680 750 015
Outside diameter
x Wall thickness
x Length mm : 6,00x1,50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,75...2,85
(2,70...2,90)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-36-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050
Rack travel in mm : 12,00
Del. quantity cm3/ : 16,45...16,65
100 s: (16,2...16,8)
Spread cm3 : 0,4
100 s: (-)

2nd speed rpm : 400
Rack travel in mm : 6,50
Del. quantity cm3/ : 1,7...2,3
100 s: (-)
Spread cm3 : 0,4
100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050
Aneroid pressure h: 700
Del. quantity : 164,5...166,5
1000 : (162,0...168,0)
Spread cm3 : 4,0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 38...46

Testing:
1st rack travel in: 11.00
Speed rpm : 1095...1105
2nd rack travel in: 6.30
Speed rpm : 1135...1165

LOW IDLE 1

Control lever
position degrees: 15...23

Setting point w/out bumper spring

Speed rpm : 400

Rack travel in mm : 6,50

Testing:

Speed rpm : 100

Minimum rack trave: 19,00

Speed rpm : 400

Rack travel in mm : 6,30

Rack travel in mm : 2,00

Speed rpm : 520...580

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 12,00

2nd speed rpm : 850

Rack travel in m: 12,00

3rd speed rpm : 550

Rack travel in m: 12,30

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 550

Pressure hPa : 610

Rack travel mm : 12.30...12.40

Measurement

Speed 1/min : 550

1st pressure hPa : 80

Rack travel in m: *

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 650

Del.quantity cm3/ : 169,0...172,0

1000 s: (167,0...174,0)

Aneroid pressure h: -

Speed rpm : 550

Del.quantity cm3/ : 90,0...98,0

1000 s: (88,0...100,0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11,00

Speed rpm : 1095...1105

STARTING FUEL DELIVERY

B02

Speed rpm : 100

Del.quantity cm3/ : 180,0...200,0

1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1150

Del.quantity cm3/ : 48,0...58,0

1000 s: (-)

LOW IDLE

Speed rpm : 400

Del.quantity cm3/ : 17,0...23,0

1000 s: (-)

Remarks:

* Start of LDA (manifold-pressure compensator) movement

Start-of-delivery mark is at 15° angular displacement of the cam after start of delivery at cylinder 1 with control-rod travel 9.00...12.00 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 a11
 Edition : 02.08.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 076 035
 Injection pump
 Pump designation : PES6P110A720RS361
 Governor
 Governor design. : RSV400...1050P2/433D
 R

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6466 A

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 457 413 010

Inlet press., bar : 1.5

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6,00x1,50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _ _ _

BEGINNING OF DELIVERY

Prestroke mm : 2,75...2,85
 : (2,70...2,90)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0,50 (0,75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050
 Rack travel in mm : 11,10
 Del. quantity cm³/ : 14,3...14,5
 100 s : (14,0...14,8)
 Spread cm³ : 0,4
 100 s : (-)

2nd speed rpm : 400
 Rack travel in mm : 6,10
 Del. quantity cm³/ : 1,9...2,5
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050
 Aneroid pressure h : 1200
 Del. quantity : 143,0...145,0
 1000 : (140,0...148,0)
 Spread cm³ : 4,0
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 40...48

Testing:
 1st rack travel in: 10,10
 Speed rpm : 1090...1110
 2nd rack travel in: 5,80
 Speed rpm : 1135...1165

LOW IDLE 1

Control lever
 position degrees: 17...25
 Setting point w/out bumper spring
 Speed rpm : 400

Rack travel in mm : 6,10

Testing:

Speed rpm : 100
Minimum rack travel: 19,00
Speed rpm : 400
Rack travel in mm : 6,00...6,20
Rack travel in mm : 2,00
Speed rpm : 570...630

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050
Rack travel in m: 11,10
2nd speed rpm : 650
Rack travel in m: 11,65...11,76

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 800
Pressure hPa : 220
Rack travel mm : *

Measurement

Speed 1/min : 800

1st pressure hPa : 665
Rack travel in m: 11,00...11,10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 650
Del. quantity cm³/ : 153,5...156,5
1000 s: (150,5...159,5)
Aneroid pressure h: -
Speed rpm : 550
Del. quantity cm³/ : 89,0...95,0
1000 s: (86,0...98,0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10,10
Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm³/ : 150,0...170,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1150
Del. quantity cm³/ : 47,0...57,0
1000 s: (-)

LOW IDLE

Speed rpm : 400
Del. quantity cm³/ : 19,0...25,0
1000 s: (-)

Start-of-delivery mark = 13.25° after
start of delivery cyl. 1.

* Start of LDA (manifold-pressure
compensator) movement

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 10,1 d5
 Edition : 02.08.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 076 036
 Injection pump
 Pump designation : PES6P110A72ORS296
 Governor
 Governor design. : RSV400...1050P7/436D
 R

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6619 A

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 457 413 010

Inlet press., bar : 1.5

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6,00X1,50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,75...2,85
 : (2,70...2,90)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0,50 (0,75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1040
 Rack travel in mm : 12,10
 Del. quantity cm³/ : 17,5...17,7
 100 s: (17,3...17,9)
 Spread cm³ : 0,4
 100 s: (-)
 2nd speed rpm : 400
 Rack travel in mm : 6,30
 Del. quantity cm³/ : 1,9...2,5
 100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1040
 Del. quantity : 175,0...177,0
 1000 : (173,0...179,0)
 Spread cm³ : 4,0
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 50...58

Testing:
 1st rack travel in: 11,10
 Speed rpm : 1060...1070
 2nd rack travel in: 4,40
 Speed rpm : 1085...1115

LOW IDLE 1

Control lever
 position degrees: 23...31
 Setting point w/out bumper spring
 Speed rpm : 400
 Rack travel in mm : 6.30

Testing:

Speed rpm : 100
Minimum rack trave: 19,00
Speed rpm : 400
Rack travel in mm : 6,20...6,40
Rack travel in mm : 2,00
Speed rpm : 400...470

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1040
Rack travel in m: 12,10
2nd speed rpm : 800
Rack travel in m: 12,40
3rd speed rpm : 650
Rack travel in m: 12,60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm³/ : 179,5...182,5
1000 s: (178,0...184,0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11,10
Speed rpm : 1060...1070

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 190,0...210,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1100
Del.quantity cm³/ : 17,0...27,0
1000 s: (-)

LOW IDLE

Speed rpm : 400
Del.quantity cm³/ : 19,0...25,0
1000 s: (-)

Remarks:

Start-of-delivery mark is at 15°
angular displacement of the cam after
start of delivery at cylinder 1 with
control-rod travel 9.00...12.00 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 1 4
 Edition : 02.08.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 076 037
 Injection pump
 Pump designation : PES6P110A720RS305
 Governor
 Governor design. : RSV400...1050P7/437D
 R

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6466 A

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve
 : 1 457 413 010

Inlet press., bar : 1.5

Test nozzle holder
 assembly : 1 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6,00X1,50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,75...2,85
 : (2,70...2,90)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0,50 (0,75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1040
 Rack travel in mm : 10,80
 Del. quantity cm3/ : 14,3...14,5
 100 s : (14,1...14,7)
 Spread cm3 : 0,4
 100 s : (-)
 2nd speed rpm : 400
 Rack travel in mm : 6,10
 Del. quantity cm3/ : 1,8...2,6
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1040
 Del. quantity : 143,0...145,0
 1000 : (141,0...147,0)
 Spread cm3 : 4,0
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 60...68

Testing:
 1st rack travel in: 9,80
 Speed rpm : 1060...1070
 2nd rack travel in: 4.10
 Speed rpm : 1085....1115

LOW IDLE 1

Control lever
 position degrees: 24...32
 Setting point w/out bumper spring
 Speed rpm : 400
 Rack travel in mm : 6.10

Testing:

Speed rpm : 100
Minimum rack trave: 19,00
Speed rpm : 400
Rack travel in mm : 6,00...6,20
Rack travel in mm : 445
Speed rpm : 2,00

TORQUE CONTROL

Dimension a mm : 0.80
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 10,80
2nd speed rpm : 650
Rack travel in m: 11,40
3rd speed rpm : 600
Rack travel in m: 11,60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm3/ : 153,5...156,5
1000 s: (152,0...158,0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9,80
Speed rpm : 1060...1070

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 150,0...180,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1100
Del.quantity cm3/ : 17,0...27,0
1000 s: (-)

LOW IDLE

Speed rpm : 400
Del.quantity cm3/ : 18,0...26,0
1000 s: (-)

Remarks:

Start-of-delivery mark = 13.25° after
start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 1 5
 Edition : 02.08.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 976 040
 Injection pump
 Pump designation : PES6P110A72ORS305
 Governor
 Governor design. : RSV400...1050P2/442D
 R

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6466 A

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 457 413 010

Inlet press., bar : 1.5

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6,00X1,50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,75...2,85
 : (2,70...2,90)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0,50 (0,75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050
 Rack travel in mm : 11,10
 Del. quantity cm3/ : 14,3...14,5
 100 s : (14,1...14,7)
 Spread cm3 : 0,4
 100 s : (-)
 2nd speed rpm : 400
 Rack travel in mm : 6,10
 Del. quantity cm3/ : 1,8...2,6
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050
 Aneroid pressure h: 700
 Del. quantity : 143,0...145,0
 1000 : (141,0...147,0)
 Spread cm3 : 4,0
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 40...48

Testing:
 1st rack travel in: 10,10
 Speed rpm : 1090...1110
 2nd rack travel in: 5,90
 Speed rpm : 1135...1165
 5th rack travel in: 1300
 Speed rpm : 0,30...1,70

LOW IDLE 1

Control lever
 position degrees: 17...25

Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 6,10

Testing:

Speed rpm : 100
Minimum rack travel: 19,00
Speed rpm : 400
Rack travel in mm : 6,00...6,20
Rack travel in mm : 2,00
Speed rpm : 570...630

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 950
Rack travel in m: 11,15
2nd speed rpm : 650
Rack travel in m: 11,70...11,90

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 550
Pressure hPa : 530
Rack travel mm : 11.65...11.75

Measurement

Speed 1/min : 550

1st pressure hPa : 330
Rack travel in m: *

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 650
Del.quantity cm3/ : 153,5...156,5
1000 s: (152,0...158,0)

Aneroid pressure h: -

Speed rpm : 550
Del.quantity cm3/ : 88,0...104,0
1000 s: (86,0...106,0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10,10
Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 150,0...170,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1150
Del.quantity cm3/ : 47,0...57,0
1000 s: (-)

LOW IDLE

Speed rpm : 400
Del.quantity cm3/ : 18,0...26,0
1000 s: (-)

Remarks:

Start-of-delivery mark = 13.25° after
start of delivery cyl. 1.

* Start of LDA (manifold-pressure
compensator) movement

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 10,1 d7
Edition : 02.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 076 041

Injection pump
Pump designation : PES6P110A720RS296
Governor
Governor design. : RSV400...1050PO/439D
R

Customer-spec. information
Customer : JOHN DEERE

Engine : 6619 T

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 457 413 010

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6,00x1,50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,75...2,85
: (2,70...2,90)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1050
Rack travel in mm : 11,20
Del. quantity cm³/ : 14,7...14,9
100 s : 14,6...15,0
Spread cm³ : 0,4
100 s : (-)

2nd speed rpm : 400
Rack travel in mm : 6,20
Del. quantity cm³/ : 2,0...2,4
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050
Aneroid pressure h : 800
Del. quantity : 146,0...150,0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 35...43

Testing:
1st rack travel in: 10,20
Speed rpm : 1090...1110
2nd rack travel in: 6,10
Speed rpm : 1135...1165
5th rack travel in: 1300
Speed rpm : 0,30...1,70

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 6,20

Testing:

Speed rpm : 100
Minimum rack travel: 19,00
Speed rpm : 400
Rack travel in mm : 5,50...5,70
Rack travel in mm : 2,00
Speed rpm : 500...560

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 450
Rack travel in m: 11,70...12,50

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 550
Pressure hPa : 740
Rack travel mm : 11.70...12.50

Measurement

Speed 1/min : 550

1st pressure hPa : 50
Rack travel in m: *

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 550
Del. quantity cm³/ : 112,0...118,0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10,20
Speed rpm : 1100...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 190,0...210,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1150
Del. quantity cm³/ : 47,0...57,0
1000 s: (-)

LOW IDLE

Speed rpm : 400
Del. quantity cm³/ : 20,0...24,0
1000 s: (-)

Remarks:

Start-of-delivery mark is at 15°
angular displacement of the cam after
start of delivery at cylinder 1 with
control-rod travel 9.00...12.00 mm

* Start of LDA (manifold-pressure
compensator) movement

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 10,1 d6
Edition : 02.08.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 420 076 042
Injection pump
Pump designation : PES6P110A720RS296
Governor
Governor design. : RSV400...1050P7/438D
R

Customer-spec. information
Customer : JOHN DEERE

Engine : 6619 T

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 457 413 010

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6,00x1,50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Prestroke mm : 2,75...2,85
: (2,70...2,90)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1040
Rack travel in mm : 11,00
Del. quantity cm³/ : 14,7...14,9
100 s : (14,5...15,1)
Spread cm³ : 0,4
100 s : (-)

2nd speed rpm : 400
Rack travel in mm : 6,10
Del. quantity cm³/ : 1,9...2,5
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1040
Del. quantity : 147,0...149,0
1000 : (145,0...151,0)
Spread cm³ : 4,0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 51...59

Testing:
1st rack travel in: 10,00
Speed rpm : 1060...1080
2nd rack travel in: 4,10
Speed rpm : 1085...1115

LOW IDLE 1

Control lever
position degrees: 24...32
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 6.10

Testing:

Speed rpm : 100
Minimum rack trave: 19,00
Speed rpm : 400
Rack travel in mm : 6,00...6,20
Rack travel in mm : 440
Speed rpm : 2,00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 450
Rack travel in m: 11.70...12.30

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10,00
Speed rpm : 1065...1075

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 190,0...210,0
1000 s: (-)

HIGH IDLE

1st version
Speed rpm : 1100
Del.quantity cm3/ : 17,0...27,0
1000 s: (-)

LOW IDLE

Speed rpm : 400
Del.quantity cm3/ : 19,0...25,0
1000 s: (-)

Remarks:

Start-of-delivery mark is at 15°
angular displacement of the cam after
start of delivery at cylinder 1 with
control-rod travel 9.00...12.00 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VAL 7,2 a
Edition : 19.05.88
Replaces : 9.3.87
Test oil : ISO-4113

Combination no. : 0 402 076 056

Injection pump
Pump designation : PES6P110A320RS505
EP type number : 0 412 016 072
Governor
Governor design. : RSV325...1150POA522
Governor no. : 0 421 833 242

Customer-spec. information
Customer : VALMET

Engine : 612 DSJ

1st version kW : 165.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
: (2.95...3.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.00...12.10

Del. quantity cm³/ : 13.8...14.1

100 s: (13.5...14.3)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 325.0

Rack travel in mm : 7.1...7.3

Del. quantity cm³/ : 1.2...1.6

100 s: (0.9...1.8)

Spread cm³ : 0.3

100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 700

Del. quantity : 138.0...141.0

1000 : (135.5...143.5)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 36...44

Testing:

1st rack travel in: 11.00

Speed rpm : 1190...1200

2nd rack travel in: 4.00

Speed rpm : 1290...1310
4th rack travel in: 1460
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 6.7

Testing:

Speed rpm : 100
Minimum rack travel: 8.60
Speed rpm : 325
Rack travel in mm : 6.60...6.80
Rack travel in mm : 2.00
Speed rpm : 460...520

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 700
Rack travel in m: 12.00...12.10
2nd speed rpm : 1150
Rack travel in m: 11.90...12.10

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 12.00...12.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.40...10.50
2nd pressure hPa : 400
Rack travel in m: 11.50...11.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 102.0...105.0
1000 s: (99.5...107.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.00

Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 200.0...220.0
1000 s: (196.0...224.0)

LOW IDLE

Speed rpm : 325
Rack travel in mm : 7.10...7.30
Del. quantity cm³/ : 12.0...16.0
1000 s: (9.5...18.5)
Spread cm³ : 3.00
1000 s: (6.00)

Remarks:

:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 13,4 g
 Edition : 02.08.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 076 700
 Injection pump
 Pump designation : PES6P110A42QLS3008
 Governor
 Governor design. : RSV350...1050PO/381D
 R

Customer-spec. information
 Customer : IHC

Engine : DTI-817 C

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Inlet press., bar : 2.8

Test nozzle holder
 assembly : 1 688 901 003

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,7

Test lines : 9 681 230 713

Outside diameter
 x Wall thickness
 x Length mm : 6,35x2,21x999,36

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,00...2,10
 : (1,95...2,15)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240
 Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1050
 Rack travel in mm : 13,30
 Del. quantity cm³/ : 20,3...20,5
 100 s : (20,1...20,7)
 Spread cm³ : 0,6
 100 s : (-)
 2nd speed rpm : 400
 Rack travel in mm : 6,50
 Del. quantity cm³/ : 4,3...5,5
 100 s : (-)
 Spread cm³ : 0,4
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050
 Aneroid pressure h : 800
 Del. quantity : 203,0...205,0
 1000 : (201,0...207,0)
 Spread cm³ : 6,0
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 39...47

Testing:
 1st rack travel in: 12,30
 Speed rpm : 1090...1210
 2nd rack travel in: 3,85
 Speed rpm : 1175...1205
 4th rack travel in: 1240
 Speed rpm : 1.30...2.00

LOW IDLE 1

Control lever
 position degrees: 17...25

Setting point w/out bumper spring

Speed rpm : 400

Rack travel in mm : 5.00

Testing:

Speed rpm : 100

Minimum rack trave: 20,00

Speed rpm : 350

Rack travel in mm : 5.40...5.60

Speed rpm : 400

Maximum rack trave: 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1030

Rack travel in m: 13.30

2nd speed rpm : 700

Rack travel in m: 14.20...14.30

3rd speed rpm : 350

Rack travel in m: 14.20...14.30

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 690

Rack travel mm : 14.20...14.30

Measurement

Speed 1/min : 500

1st pressure hPa : 100

Rack travel in m: *

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800

Speed rpm : 700

Del.quantity cm3/ : 238,0...245,0

1000 s: (236,0...247,0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 151,0...159,0

1000 s: (149,0...161,0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12,30

Speed rpm : 1085...1095

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 190,0...230,0

1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1140

Del.quantity cm3/ : 30,0...40,0

1000 s: (-)

LOW IDLE

Speed rpm : 350

Del.quantity cm3/ : 21,0...31,0

1000 s: (-)

Remarks:

* Start of LDA (manifold-pressure compensator) movement

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 13,4 h
Edition : 23.08.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 076 704
Injection pump
Pump designation : PES6P110A420LS3008
Governor
Governor design. : RSV350...1050PO/386D
R

Customer-spec. information
Customer : IH

Engine : DTI-817C

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Inlet press., bar : 2.8
Opening
pressure, bar : 207...210

Test lines : 9 681 230 713

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x1016

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,00...2,10
: (1,95...2,15)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del.quantity cm3/ : 10,4...11,8

100 s: (-)

2nd speed rpm : 1000
Rack travel in mm : 12,00
Del.quantity cm3/ : 17,6...18,6
100 s: (-)

3rd speed rpm : 600
Rack travel in mm : 6,00
Del.quantity cm3/ : 3,4...4,4
100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 800

Del.quantity : 196,0...202,0
1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 39...47

Testing:

1st rack travel in: 12,30

Speed rpm : 1090...1110

2nd rack travel in: 8,00

Speed rpm : 1135...1165

3rd rack travel in: 1,30...6,40

Speed rpm : 1190

4th rack travel in: 1240

Speed rpm : 1,30...2,00

LOW IDLE 1

Control lever

position degrees: 17...25

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 5,50

Testing:

Speed rpm : 100

Minimum rack travel: 20,00

Speed rpm : 350

Rack travel in mm : 5,40...5,60

Rack travel in mm : 1,65
Speed rpm : 390..410

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1030

Rack travel in m: 9,00

2nd speed rpm : 750

Rack travel in m: 9,70...9,90

3rd speed rpm : 450

Rack travel in m: 9,70...9,90

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 132

Rack travel mm : *

Measurement

Speed 1/min : 500

1st pressure hPa : 488

Rack travel in m: **

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800

Speed rpm : 750

Del.quantity cm³/ : 230,0...240,0

1000 s: (-)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm³/ : 158,5...159,5

1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11,00

Speed rpm : 1085...1095

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 225,0...295,0

1000 s: (-)

HIGH IDLE

1st version

B20

Speed rpm : 1145
Rack travel in mm : 4,70...5,70

LOW IDLE

Speed rpm : 350

Del.quantity cm³/ : 24,0...34,0

1000 s: (-)

Remarks:

* Start of LDA (manifold-pressure
compensator) movement

** Ende der LDA-Bewegung

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 13,4 d1
 Edition : 02.08.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 076 711
 Injection pump
 Pump designation : PES6P110A420LS3043
 Governor
 Governor design. : RSV350...1050P0/4300
 R

Customer-spec. information
 Customer : IHC

Engine : DTI-817 C

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Inlet press., bar : 2.8

Test nozzle holder
 assembly : 1 688 901 003

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,7

Test lines : 9 681 230 713

Outside diameter
 x Wall thickness
 x Length mm : 6,35X2,12X999,36

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY

Prestroke mm : 2,00...2,10
 : (1,95...2,15)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240
 Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1050
 Rack travel in mm : 13,30
 Del. quantity cm3/ : 20,3...20,5
 100 s : (20,1...20,7)
 Spread cm3 : 0,6
 100 s : (-)
 2nd speed rpm : 350
 Rack travel in mm : 5,60
 Del. quantity cm3/ : 4,2...6,2
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050
 Aneroid pressure h : 800
 Del. quantity : 203,0...205,0
 1000 : (201,0...207,0)
 Spread cm3 : 6,0
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 39...47

Testing:
 1st rack travel in: 12.30
 Speed rpm : 1090...1110
 2nd rack travel in: 3.85
 Speed rpm : 1175...1205
 4th rack travel in: 1240
 Speed rpm : 1.30...2.00

LOW IDLE 1

Control lever
 position degrees: 17...25
 Setting point w/out bumper spring
 Speed rpm : 350

Rack travel in mm : 5.00

Testing:

Speed rpm : 100
Minimum rack trave: 20.00
Speed rpm : 350
Rack travel in mm : 5.30...5.70
Speed rpm : 400
Maximum rack trave: 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050
Rack travel in m: 13.30
2nd speed rpm : 350
Rack travel in m: 14.20...14.30

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 630
Rack travel mm : 14.20...14.30

Measurement

Speed 1/min : 500

1st pressure hPa : 90
Rack travel in m: *

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800
Speed rpm : 700
Del.quantity cm³/ : 238,0...245,0
1000 s: (236,0...247,0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 151,0...159,0
1000 s: (149,0...161,0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12,30
Speed rpm : 1085...1095

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 265,0...305,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1140
Del.quantity cm³/ : 30,0...40,0
1000 s: (-)

LOW IDLE

Speed rpm : 350
Del.quantity cm³/ : 42,0...62,0
1000 s: (-)

* Start of LDA (manifold-pressure
compensator) movement

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 13,4 d2
 Edition : 02.08.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 076 713
 Injection pump
 Pump designation : PES6P110A42LOLS3043
 Governor
 Governor design. : RSV350...1050P0/432D
 R

Customer-spec. information
 Customer : IHC

Engine : DTI-817 C

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Inlet press., bar : 2.8

Test nozzle holder
 assembly : 1 688 901 003

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,7

Test lines : 9 681 230 713

Outside diameter
 x Wall thickness
 x Length mm : 6,35X2.21X999,36

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY

Prestroke mm : 2,00...2,10
 : (1,95...2,15)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1050
 Rack travel in mm : 13,00
 Del. quantity cm3/ : 19,3...19,5
 100 s : (19,1...19,7)
 Spread cm3 : 0,6
 100 s : (-)
 2nd speed rpm : 350
 Rack travel in mm : 5,60
 Del. quantity cm3/ : 2,1...3,1
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050
 Aneroid pressure h: 800
 Del. quantity : 193,0...195,0
 1000 : (191,0...197,0)
 Spread cm3 : 6,0
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 39...47

Testing:
 1st rack travel in: 12.00
 Speed rpm : 1090...1210
 2nd rack travel in: 3.85
 Speed rpm : 1175...1205
 4th rack travel in: 1240
 Speed rpm : 1.30...2.00

LOW IDLE 1

Control lever
 position degrees: 17...25
 Setting point w/out bumper spring
 Speed rpm : 350

Rack travel in mm : 5.50

Testing:

Speed rpm : 100
Minimum rack trave: 20.00
Speed rpm : 350
Rack travel in mm : 5.30...5.70
Speed rpm : 400
Maximum rack trave: 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050
Rack travel in m: 13,00
2nd speed rpm : 750
Rack travel in m: 13,70...13,90
3rd speed rpm : 450
Rack travel in m: 13,70...13,90

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 550
Rack travel mm : 13.70...13.90

Measurement

Speed 1/min : 500

1st pressure hPa : 90
Rack travel in m: *

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800
Speed rpm : 750
Del.quantity cm3/ : 227,0...233,0
1000 s: (225,0...235,0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 158,0...166,0
1000 s: (156,0...168,0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12,00
Speed rpm : 1085...1095

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 260,0...310,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1140
Del.quantity cm3/ : 30,0...40,0
1000 s: (-)

LOW IDLE

Speed rpm : 350
Del.quantity cm3/ : 21,0...31,0
1000 s: (-)

Remarks:

* Start of LDA (manifold-pressure
compensator) movement

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,4 o 3
 Edition : 11.03.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 076 717
 Injection pump
 Pump designation : PES6P120A82QLS3095-1
 EP type number : 0 412 026 715
 Governor
 Governor design. : RSV350...750POA487-4
 Governor no. : 0 421 833 265

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM407A

1st version kW : 169.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 730

Rack travel in mm : 12.40...12.50

Del. quantity cm³/ : 19.6...19.8

100 s: (19.3...20.1)

Spread cm³ : 0.5

100 s: (0.8)

2nd speed rpm : 350.0

Rack travel in mm : 5.7...5.9

Del. quantity cm³/ : 3.0...4.0

100 s: (-)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 730

Del. quantity : 196.0...198.0

1000 : (193.0...201.0)

Spread cm³ : 5.00

1000 : (8.00)

RATED SPEED

1st version

Control lever

position degrees: 29...37

Testing:

1st rack travel in: 11.40
Speed rpm : 750...755
2nd rack travel in: 4.00
Speed rpm : 776...789
4th rack travel in: 900
Speed rpm : 0.30...1.40

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 350
Rack travel in mm : 5.8
Speed rpm : 350
Rack travel in mm : 5.70...5.90

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.40
Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 170.0...190.0
1000 s: (166.0...194.0)

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,7 e
 Edition : 16.05.88
 Replaces : 12.9.86
 Test oil : ISO-4113

Combination no. : 0 402 076 719

Injection pump
 Pump designation : PES6P110A82OLS3131-1
 EP type number : 0 412 016 717
 Governor
 Governor design. : RSV350...750POA517
 Governor no. : 0 421 833 215

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM427

1st version kW : 142.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness : 6.00X1.50X600
 x Length mm

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40
 : (4.25...4.45)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.20...12.30

Del. quantity cm³/ : 13.6...13.8

100 s: (13.3...14.1)

Spread cm³ : 0.4

100 s: (0.8)

2nd speed rpm : 350.0

Rack travel in mm : 6.9...7.1

Del. quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del. quantity : 136.0...138.0

1000 : (133.0...141.0)

Spread cm³ : 4.00

1000 : (8.00)

RATED SPEED

1st version

Control lever

position degrees: 24...32

Testing:

1st rack travel in: 11.20

Speed rpm : 750...755
2nd rack travel in: 4.00
Speed rpm : 775...788
4th rack travel in: 900
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 13...21
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 7.0

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 350
Rack travel in mm : 6.90...7.10
Rack travel in mm : 2.00
Speed rpm : 360...400

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.20
Speed rpm : 740...750

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

Observe VDT-I-420/120

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 y 1
 Edition : 15.06.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 076 722
 Injection pump
 Pump designation : PES6P120A72ORS3203
 EP type number : 0 412 026 728
 Governor
 Governor design. : RSV400...1100P2A534
 Governor no. : 0 421 833 275

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6466 HF-050

1st version kW : 194.0
 2nd version kW : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values ____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 10.50...10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.60...11.70

Del. quantity cm³/ : 14.8...15.0

100 s: (14.5...15.2)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 400.0

Rack travel in mm : 4.8...5.0

Del. quantity cm³/ : 1.8...2.3

100 s: (1.6...2.6)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 1200

Del. quantity : 148.0...150.0

1000 : (145.5...152.5)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 45...53

Testing:

1st rack travel in: 10.70
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1205...1215
3rd rack travel in: 4.00
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 4.4

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 4.80...5.00
Rack travel in mm : 2.00
Speed rpm : 535...595

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.60...11.70
2nd speed rpm : 750
Rack travel in m: 12.50...12.70

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 9.70...9.90

Measurement

Speed 1/min : 500
1st pressure hPa : 605
Rack travel in m: 10.50...10.60
2nd pressure hPa : 820
Rack travel in m: 11.70...12.10
3rd pressure hPa : 1200
Rack travel in m: 12.60...12.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 750
Del. quantity cm³/ : 180.0...185.0
1000 s: (177.5...187.5)
Aneroid pressure h: -
Speed rpm : 500

Del. quantity cm³/ : -
1000 s: (118.5...128.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.70
Speed rpm : 1145...1155

INTERMEDIATE RATED SPEED

Rack travel in mm : 4.00

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 4.80...5.00
Del. quantity cm³/ : 18.5...23.5
1000 s: (16.0...26.0)
Spread cm³ : 4.50
1000 s: (7.50)

Remarks:

: JOHN DEERE # RE32035

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Starting/full-load transition speed
from holding magnet = 450 1/min.

Start-of-delivery mark 10.5° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 y
Edition : 15.06.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 076 723
Injection pump
Pump designation : PES6P120A720RS3203
EP type number : 0 412 026 728
Governor
Governor design. : RSV400...1100P2A534-
1
Governor no. : 0 421 833 276

Customer-spec. information
Customer : JOHN DEERE

Engine : 6466 AF-050

1st version kW : 180.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 3.55...3.65
: (3.50...3.70)
Rack travel in mm : 10.50...10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.20...11.30

Del. quantity cm³/ : 14.2...14.4

100 s: (13.9...14.6)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 400.0

Rack travel in mm : 4.7...4.9

Del. quantity cm³/ : 1.7...2.2

100 s: (1.5...2.8)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 900

Del. quantity : 142.0...144.0

1000 : (139.5...146.5)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testing:
1st rack travel in: 10.20
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1200...1210
4th rack travel in: 1350
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 4.3

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 4.70...4.90
Rack travel in mm : 2.00
Speed rpm : 535...595

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.20...11.30
2nd speed rpm : 700
Rack travel in m: 12.40...12.60

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.40...12.60

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.00...10.20
2nd pressure hPa : 540
Rack travel in m: 10.60...10.70
3rd pressure hPa : 740
Rack travel in m: 11.80...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 700
Del.quantity cm³/ : 181.0...185.0
1000 s: (178.0...188.0)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm³/ : -
1000 s: (127.0...137.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.20
Speed rpm : 1145...1155

INTERMEDIATE RATED SPEED
Rack travel in mm : 4.00

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 4.70...4.90
Del.quantity cm³/ : 17.5...22.5
1000 s: (15.0...28.0)
Spread cm³ : 4.50
1000 s: (7.50)

Remarks:

: JOHN DEERE # RE32033

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Starting/full-load transition speed
from holding magnet = 450 1/min.

Start-of-delivery mark 10.5° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,7 d 2
 Edition : 07.03.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 076 725
 Injection pump
 Pump designation : PES6P110A82OLS3131-1
 EP type number : 0 412 016 717
 Governor
 Governor design. : RSV350..1050POA487-5
 Governor no. : 0 421 833 285

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM447

1st version kW : 177.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40
 : (4.25...4.45)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1030

Rack travel in mm : 12.50...112.00

Del. quantity cm³/ : 15.0...15.2

100 s: (14.7...15.4)

Spread cm³ : 0.4

100 s: (0.8)

2nd speed rpm : 350.0

Rack travel in mm : 7.0...7.3

Del. quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1030

Del. quantity : 150.0...152.0

1000 : (147.5...154.5)

Spread cm³ : 4.00

1000 : (8.00)

RATED SPEED

1st version

Control lever

position degrees: 43...51

Testing:

1st rack travel in: 11.50

Speed rpm : 1075...1085
2nd rack travel in: 4.00
Speed rpm : 1130...1160
4th rack travel in: 1350
Speed rpm : 0.00...1.40

LOW IDLE 1

Control lever

position degrees: 20...28

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 7.1

Testing:

Speed rpm : 100

Minimum rack travel: 19.50

Speed rpm : 350

Rack travel in mm : 7.00...7.30

Rack travel in mm : 2.00

Speed rpm : 400...440

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600

Del. quantity cm³/ : 133.0...137.0

1000 s: (130.0...140.0)

Spread cm³ : 6.00

1000 s: (9.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50

Speed rpm : 1075...1085

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm³/ : 130.0...150.0

1000 s: (126.0...154.0)

LOW IDLE

Speed rpm : 350

Rack travel in mm : 7.00...7.30

Del. quantity cm³/ : 14.0...20.0

1000 s: (11.0...23.0)

Spread cm³ : 4.50

1000 s: (7.00)

Remarks:

C06

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 10,1 f
 Edition : 15.06.88
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 076 726

Injection pump
 Pump designation : PES6P110A72ORS3209
 EP type number : 0 412 016 722
 Governor
 Governor design. : RSV400...1050POA537
 Governor no. : 0 421 833 287

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6619 A

1st version kW : 168.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x3.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 3.45...3.55
 : (3.40...3.60)
 Rack travel in mm : 10.50...10.50

C07

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.10...11.20

Del. quantity cm³/ : 16.5...16.7

100 s: (16.2...16.9)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 400.0

Rack travel in mm : 5.0...5.2

Del. quantity cm³/ : 1.6...2.1

100 s: (1.3...2.3)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del. quantity : 165.0...167.0

1000 : (162.5...169.5)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testing:

1st rack travel in: 10.10

Speed rpm : 1090...1100

2nd rack travel in: 4.00

Speed rpm : 1145...1155

3rd rack travel in: 4.00
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 4.6

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.00...5.20
Rack travel in mm : 2.00
Speed rpm : 505...565

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 11.10...11.20
2nd speed rpm : 700
Rack travel in m: 11.80...12.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del. quantity cm³/ : 177.5...182.5
1000 s: (175.0...185.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10
Speed rpm : 1090...1100

INTERMEDIATE RATED SPEED

Rack travel in mm : 4.00

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 175.0...195.0
1000 s: (170.0...200.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.00...5.20
Del. quantity cm³/ : 16.0...21.0
1000 s: (13.5...23.5)

C08

Spread cm³ : 4.50
1000 s: (7.50)

Remarks:

: JOHN DEERE # RE33898

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Starting/full-load transition speed
from holding magnet = 450 1/min.

Start-of-delivery mark at 14° angular
displacement of the cam after start of
delivery of cylinder 1 with control-rod
travel = 10.50 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 9.4 a 8
 Edition : 02.08.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 088 024
 Injection pump
 Pump designation : PES8P100A921/SRS286
 Governor
 Governor design. : RSV350...1100P0/418D
 R

Customer-spec. information
 Customer : IHC

Engine : DV 800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Inlet press., bar : 2.8

Test nozzle holder
 assembly : 1 688 901 004

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 9 681 230 713

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY

Prestroke mm : 2,70...2,80
 : (2,65...2,85)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-8-4-2-7-3-6-5

Phasing : 0-45-90-135-180-225-
 Phasing : 270-315
 Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

C09

1st speed rpm : 1100

Rack travel in mm : 10,30

Del. quantity cm³/ : 11,8...12,1

100 s : (11,6...12,3)

Spread cm³ : 0,4

100 s : (-)

2nd speed rpm : 350

Rack travel in mm : 5,00

Del. quantity cm³/ : 1,6...2,3

100 s : (-)

Spread cm³ : 0,6

100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 118,0...121,0

1000 : (116,0...123,0)

Spread cm³ : 4,0

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:

1st rack travel in: 9.30

Speed rpm : 1140...1150

2nd rack travel in: 3.10

Speed rpm : 1235...1265

LOW IDLE 1

Control lever

position degrees: 19...27

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 6.00

Testing:

Speed rpm : 150

Minimum rack trave: 19.00

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Speed rpm : 430
Maximum rack trave: 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1080
Rack travel in m: 10.30
2nd speed rpm : 860
Rack travel in m: 11.00...11.20
3rd speed rpm : 700
Rack travel in m: 11.00...11.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 850
Del.quantity cm3/ : 126.0...132.0
1000 s: (124.0...134.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.30
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 200.0...250.0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1200
Del.quantity cm3/ : 13.0...33.0
1000 s: (-)

LOW IDLE

Speed rpm : 350
Del.quantity cm3/ : 16.0...23.0
1000 s: (-)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : STE 12.0 c
Edition : 16.05.88
Replaces : 13.5.87
Test oil : ISO-4113

Combination no. : 0 402 638 801

Injection pump
Pump designation : PE8P120A12OLS7127
EP type number : 0 412 628 817
Governor
Governor design. : RQ300/1100PA134-2
Governor no. : 0 421 801 364

Customer-spec. information
Customer : STEYR

Engine : WD 815.66

1st version kW : 277.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
: (4.95...5.15)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 4- 8- 6- 3-
7- 2

Phasing : 0-45-90-135-180-225-
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.50...11.60

Del. quantity cm³/ : 17.6...17.8

100 s: (17.3...18.1)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.5

Del. quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 1200

Del. quantity : 176.0...178.0

1000 : (173.0...181.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 16.0

Testing:

1st rack travel in: 10.50
Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1210...1240
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.4

Testing:

Speed rpm : 100
Minimum rack travel: 7.80
Speed rpm : 300
Rack travel in mm : 6.30...6.50
Rack travel in mm : 2.00
Speed rpm : 400...440

TORQUE CONTROL

Dimension a mm : 0.25
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.50...11.60
2nd speed rpm : 700
Rack travel in m: 12.00...12.10
3rd speed rpm : 1000
Rack travel in m: 11.60...11.80
4th speed rpm : 850
Rack travel in m: 11.80...12.10

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 12.00...12.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.50...9.60
2nd pressure hPa : 760
Rack travel in m: 11.50...11.60
3rd pressure hPa : 470
Rack travel in m: 10.00...10.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 700
Del. quantity cm³/ : 183.0...191.0
1000 s: (181.0...193.0)

Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 122.0...126.0
1000 s: (120.0...128.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.50
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 230.0...260.0
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.30...6.50
Del. quantity cm³/ : 14.0...20.0
1000 s: (11.0...23.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 11,0 v2
Edition : 07.09.89
Replaces : 24.7.87
Test oil : ISO-4113

Combination no. : 0 402 646 804

Injection pump
Pump designation : PE6P120A720RS7004
EP type number : 0 412 626 801
Governor
Governor design. : RQ900PA528
Governor no. : 0 421 801 127

Customer-spec. information
Customer : SAAB - SCANIA

Engine : DS11 43,44,45

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
: (4.95...5.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 12.80...12.90

Del. quantity cm³/ : 20.7...20.9

100 s: (20.4...21.2)

Spread cm³ : 0.6

100 s: (0.9)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Del. quantity : 207.0...209.0

1000 : (204.0...212.0)

Spread cm³ : 6.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 22...30

Testing:

1st rack travel in: 11.80

Speed rpm : 900...905

2nd rack travel in: 4.00

Speed rpm : 941...955

4th rack travel in: 1000

Speed rpm : 0.00...1.00

LOW IDLE 1

Testing:

Speed rpm : 100

Rack travel in mm : 2.00

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 240.0...290.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

HIGH IDLE

1st version
Rack travel in mm : 4.90...5.10
Spread cm³ : 4.00
1000 s: (7.00)

Remarks:

:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

ADDITIONAL INFORMATION

Check and set without ROBO diaphragm

For comb. with letter index see
VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over
on Oct. 17, 1988

Engine model DS 11 - 17° before top
dead center.

Engine model DSI 11 - 16° before top
dead center.

Firing sequence of engine:
1-5-3-6-2-4.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 11,0 j1
 Edition : 07.03.88
 Replaces : 13.5.87
 Test oil : ISO-4113
 Combination no. : 0 402 646 821
 Injection pump
 Pump designation : PE6P120A720RS7104
 EP type number : 0 412 626 807
 Governor
 Governor design. : RQV200...1000PA725
 Governor no. : 0 421 813 457

Customer-spec. information
 Customer : SAAB-SCANIA

Engine : DSC 11 01

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.50...4.60
 : (4.45...4.65)

Rack travel in mm : 6.00...8.00

C15

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 7.00...14.70
 & maximum rack tra: 21.00
 Difference ° CS : 1.85...2.55

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 14.70...14.80

Del. quantity cm3/ : 21.0...21.2

100 s: (20.7...21.5)

Spread cm3 : 0.7

100 s: (1.0)

2nd speed rpm : 225.0

Rack travel in mm : 4.4...4.6

Del. quantity cm3/ : 1.4...1.8

100 s: (-)

Spread cm3 : 0.3

100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225
 travel mm : 1.20...1.60

2nd speed rpm : 350
 travel mm : 2.40...3.00

3rd speed rpm : 650
 travel mm : 4.50...5.10

4th speed rpm : 1045
 travel mm : 8.40...8.60

5th speed rpm : 1165
 travel mm : 10.00...10.40

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1050

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 700
Aneroid pressure h: 900
Del.quantity : 210.0...212.0
1000 : (207.0...215.0)
Spread cm3 : 7.00
1000 : (10.00)

RATED SPEED

1st version
Control lever
position degrees: 59...67

Testing:
1st rack travel in: 13.70
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 5...13

Testing:
Speed rpm : 100
Minimum rack travel: 5.90
Speed rpm : 225
Rack travel in mm : 4.40...4.60
Rack travel in mm : 2.00
Speed rpm : 310...370

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 14.70...14.80

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.80...11.90
2nd pressure hPa : 410
Rack travel in m: 14.00...14.10
3rd pressure hPa : 290
Rack travel in m: 12.40...12.60

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 1000

Del.quantity cm3/ : 201.0...209.0
1000 s: (199.0...211.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 164.0...168.0
1000 s: (162.0...170.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.70
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 240.0...290.0
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 225
Rack travel in mm : 4.40...4.60
Del.quantity cm3/ : 14.0...18.0
1000 s: (-)
Spread cm3 : 3.00
1000 s: (6.00)

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Check and set without ROBO diaphragm

For comb. with letter index see
VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over
on May 17, 1984

Start of delivery - engine: 22° before
TDC at control-rod travel = 6.0...
8.0 mm

Firing sequence of engine:
1-5-3-6-2-4.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 t
Edition : 13.06.88
Replaces : 9.10.87
Test oil : ISO-4113

Combination no. : 0 402 646 838

Injection pump
Pump designation : PE6P120A32OLS7808
EP type number : 0 412 626 816
Governor
Governor design. : RQ300/1050PA762-4
Governor no. : 0 421 801 390

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM441 LA

1st version kW : 240.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (5.15...5.35)

Rack travel in mm : 20.00...21.00

Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.90...14.10

Del.quantity cm³/ : 21.4...21.6

100 s: (21.1...21.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.7...6.0

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 900

Del.quantity : 214.0...216.0

1000 : (211.0...219.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.70
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.8

Testing:

Speed rpm : 200
Minimum rack travel: 7.70
Speed rpm : 300
Rack travel in mm : 5.70...6.00
Rack travel in mm : 2.00
Speed rpm : 370...410

TORQUE CONTROL

Dimension a mm : 0.30
2nd speed rpm : 1050
Rack travel in m: 14.70...14.90
3rd speed rpm : 800
Rack travel in m: 15.10...15.30

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 600
Pressure hPa : 900
Rack travel mm : 13.90...14.10

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 10.70...10.90
2nd pressure hPa : 550
Rack travel in m: 12.70...12.90
3rd pressure hPa : 1050
Rack travel in m: 14.00...14.10
4th pressure hPa : 1150
Rack travel in m: 14.40...14.60
5th pressure hPa : -
Rack travel in m: 9.50...9.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1350
Speed rpm : 1050
Del.quantity cm3/ : 236.0...239.0
1000 s: (233.0...242.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1350
Speed rpm : 800
Del.quantity cm3/ : 243.0...247.0
1000 s: (240.0...250.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 145.0...147.0
1000 s: (142.0...150.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.70
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 205.0...225.0
1000 s: (201.0...229.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 t 2
 Edition : 25.03.88
 Replaces : 27.3.87
 Test oil : ISO-4113
 Combination no. : 0 402 646 843
 Injection pump
 Pump designation : PE6P12QA32OLS7808
 EP type number : 0 412 626 816
 Governor
 Governor design. : RQV300...1050PA797-2
 Governor no. : 0 421 813 614

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM441 LA

1st version kW : 240.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.90...14.10

Del. quantity cm3/ : 21.1...21.3

100 s: (20.8...21.6)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.7...6.0

Del. quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.20...1.40

2nd speed rpm : 600

travel mm : 4.90...5.10

3rd speed rpm : 1075

travel mm : 7.40...7.60

4th speed rpm : 1100

travel mm : 8.00...8.40

5th speed rpm : 1150

travel mm : 9.00...9.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1100

Rack travel in mm : 15.80...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 600
Aneroid pressure h: 900
Del. quantity : 211.0...213.0
1000 : (208.0...216.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 50...58

Testing:
1st rack travel in: 13.80
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1
Control lever
position degrees: 15...23

Testing:
Speed rpm : 200
Minimum rack travel: 7.70
Speed rpm : 300
Rack travel in mm : 5.50...5.80

CONSTANT REGULATION
Speed rpm : 300...450

TORQUE CONTROL
Dimension a mm : 0.30
2nd speed rpm : 1050
Rack travel in m: 14.60...14.80
3rd speed rpm : 800
Rack travel in m: 15.90...15.10
4th speed rpm : 700

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 900
Rack travel mm : 13.90...14.10

Measurement
Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 10.70...10.90
2nd pressure hPa : 550
Rack travel in m: 12.70...12.90

3rd pressure hPa : 1050
Rack travel in m: 14.00...14.10
4th pressure hPa : 1150
Rack travel in m: 14.40...14.60
5th pressure hPa : -
Rack travel in m: 9.00...9.30

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1350
Speed rpm : 1050
Del. quantity cm3/ : 236.0...239.0
1000 s: (233.0...242.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1350
Speed rpm : 800
Del. quantity cm3/ : 242.0...246.0
1000 s: (239.0...249.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm3/ : 133.0...135.0
1000 s: (130.0...138.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.80
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 190.0...210.0
1000 s: (186.0...214.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : UNI 13,8 e
Edition : 26.02.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 646 859
Injection pump
Pump designation : PE6P130A720RS7153
EP type number : 0 412 636 809
Governor
Governor design. : RQV300...950PA883
Governor no. : 0 421 813 690

Customer-spec. information
Customer : IVECO-UNIC

Engine : 8210.42.300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
x Wall thickness
x Length mm : 8.00X3.00X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
: (4.95...5.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 950

Rack travel in mm : 12.80...12.90

Del. quantity cm³/ : 29.7...30.0

100 s : (29.3...30.3)

Spread cm³ : 0.6

100 s : (1.0)

2nd speed rpm : 300.0

Rack travel in mm : 2.9...3.1

Del. quantity cm³/ : 1.9...2.5

100 s : (1.5...2.9)

Spread cm³ : 1.0

100 s : (1.4)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.10...1.50

2nd speed rpm : 450

travel mm : 2.80...3.40

3rd speed rpm : 700

travel mm : 5.10...5.50

4th speed rpm : 950

travel mm : 7.10...7.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1000

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 950

Aneroid pressure h: 900

Del. quantity : 297.0...300.0

1000 : (293.5...303.5)

Spread cm³ : 6.00

1000 : (10.00)

RATED SPEED

1st version
Control lever
position degrees: 61...69

Testing:

1st rack travel in: 11.80
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1070...1100
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 3...11
Speed rpm : 300
Rack travel in mm : 2.90...3.10

CONSTANT REGULATION

Speed rpm : 310...430

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.80...12.90

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.30...8.50
2nd pressure hPa : 500
Rack travel in m: 11.80...11.90
3rd pressure hPa : 380
Rack travel in m: 9.20...9.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 157.0...160.0
1000 s: (153.5...163.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.80
Speed rpm : 990...1000

C23

INTERMEDIATE RATED SPEED

Rack travel in mm : 4.00

STARTING FUEL DELIVERY

Speed rpm : 100

LOW IDLE

Speed rpm : 300
Rack travel in mm : 2.90...3.10
Del. quantity cm³/ : 19.0...25.0
1000 s: (15.0...29.0)
Spread cm³ : 10.00
1000 s: (14.00)

Remarks:

:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 16,0 c
Edition : 15.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 646 883

Injection pump
Pump designation : PE6P130A72ORS7122-2
EP type number : 0 412 636 813
Governor
Governor design. : RQV225...930PA922
Governor no. : 0 421 813 763

Customer-spec. information
Customer : VOLVO-TRUCK

Engine : TD162 FS,FL,FJ

1st version kW : 357.0
Rated speed : 1860

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70
: (3.55...3.75)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.30 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.30...13.40

Del. quantity cm3/ : 28.8...29.1

100 s: (28.5...29.5)

Spread cm3 : 0.6

100 s: (1.0)

2nd speed rpm : 250.0

Rack travel in mm : 5.0...5.2

Del. quantity cm3/ : 2.5...3.0

100 s: (2.3...3.3)

Spread cm3 : 0.5

100 s: (0.8)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.00...1.40

2nd speed rpm : 350

travel mm : 2.10...2.70

3rd speed rpm : 700

travel mm : 5.60...6.20

4th speed rpm : 975

travel mm : 8.20...8.40

5th speed rpm : 1090

travel mm : 9.50...9.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1100

Rack travel in mm : 7.70...10.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 700

Del.quantity : 288.5...291.5
1000 : (285.0...295.0)
Spread cm3 : 6.00
1000 : (10.00)

RATED SPEED

1st version
Control lever
position degrees: 61...69

Testing:

1st rack travel in: 12.30
Speed rpm : 970...980
2nd rack travel in: 4.00
Speed rpm : 1075...1105
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 6...14

Testing:

Speed rpm : 100
Minimum rack travel: 6.50
Speed rpm : 250
Rack travel in mm : 5.00...5.20

CONSTANT REGULATION

Speed rpm : 225...450

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 13.30...13.40

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 9.70...9.90

2nd pressure hPa : 80

Rack travel in m: 10.00...10.10

3rd pressure hPa : 610

Rack travel in m: 12.90...13.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 700

Del.quantity cm3/ : 182.0...185.0
1000 s: (178.5...188.5)

C25

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.30
Speed rpm : 970...980

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 125.0...145.0
1000 s: (121.0...149.0)
Rack travel in mm : 9.70...9.90

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.00...5.20
Del.quantity cm3/ : 25.5...30.5
1000 s: (23.0...33.0)
Spread cm3 : 5.00
1000 s: (8.00)

Remarks:

:

Delivery-valve spring pre-tension
3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 3.0...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 14,2 a1
 Edition : 26.02.88
 Replaces : 6.10.86
 Test oil : ISO-4113
 Combination no. : 0 402 648 802
 Injection pump
 Pump designation : PE8P120A920/4LS7002S
 EP type number : 0 412 628 800
 Governor
 Governor design. : RQV200...1050PA547
 Governor no. : 0 421 813 293

Customer-spec. information
 Customer : SAAB-SCANIA

Engine : DS14 07

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 2- 7- 3- 4- 5-
 6- 8

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 13.20...13.30
 Del.quantity cm3/ : 18.7...18.9
 100 s: (18.4...19.2)
 Spread cm3 : 0.6
 100 s: (0.9)

2nd speed rpm : 225.0
 Rack travel in mm : 4.9...5.1
 Del.quantity cm3/ : 1.0...1.4
 100 s: (-)
 Spread cm3 : 0.3
 100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225
 travel mm : 1.20...1.40
 2nd speed rpm : 280
 travel mm : 1.80...2.10
 3rd speed rpm : 350
 travel mm : 2.40...2.80
 4th speed rpm : 1090
 travel mm : 8.40...8.60
 5th speed rpm : 1200
 travel mm : 9.80...10.10

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1100
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Aneroid pressure h: 900
 Del.quantity : 187.0...189.0
 1000 : (184.0...192.0)

Spread cm³ : 6.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 57...65

Testing:
1st rack travel in: 12.20
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1185...1215
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 6...14

Testing:
Speed rpm : 100
Minimum rack travel: 6.40
Speed rpm : 225
Rack travel in mm : 4.90...5.10
Rack travel in mm : 2.00
Speed rpm : 340...400

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.20...13.30

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.30...11.40
2nd pressure hPa : 350
Rack travel in m: 12.80...12.90
3rd pressure hPa : 230
Rack travel in m: 11.90...12.10

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 1000
Del. quantity cm³/ : 184.0...192.0
1000 s: (182.0...194.0)
Aneroid pressure h: -
Speed rpm : 500

Del. quantity cm³/ : 137.0...141.0
1000 s: (135.0...143.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.20
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 240.0...290.0
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 225
Rack travel in mm : 4.90...5.10
Del. quantity cm³/ : 10.0...14.0
Spread cm³ : 3.00
1000 s: (6.00)

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Check and set without ROBO diaphragm

For comb. with letter index see
VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over
on Aug. 18, 1983

Engine start of delivery: 18° BTDC

Engine firing sequence: 1-5-4-2-6-3-7-8

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 a 1
Edition : 22.04.88
Replaces : 18.9.87
Test oil : ISO-4113

Combination no. : 0 402 648 812

Injection pump
Pump designation : PE8P120A320LS7801
EP type number : 0 412 628 806
Governor
Governor design. : RQ300/1050PA717
Governor no. : 0 421 801 258

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM442 LA

1st version kW : 320.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (5.15...5.35)

Rack travel in mm : 20.00...21.00

Firing order : 8- 7- 2- 6- 3- 5-
4- 1

Phasing : 0-45-90-135-180-225-
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.70...14.90

Del. quantity cm3/ : 22.0...22.2

100 s: (21.7...22.5)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.1...6.7

Del. quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 680

Del. quantity : 220.0...222.0

1000 : (217.0...225.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 14.40
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.4

Testing:

Speed rpm : 200
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.10...6.70
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.35
2nd speed rpm : 1050
Rack travel in m: 15.20...15.40
3rd speed rpm : 850
Rack travel in m: 15.80...16.10

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 600
Pressure hPa : 680
Rack travel mm : 14.70...14.90

Measurement

Speed 1/min : 600

1st pressure hPa : 310
Rack travel in m: 12.10...12.30
2nd pressure hPa : 470
Rack travel in m: 13.70...13.90
3rd pressure hPa : 820
Rack travel in m: 14.90...15.10
4th pressure hPa : 1100
Rack travel in m: 15.90...16.00
5th pressure hPa : -
Rack travel in m: 11.40...11.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

D01

1st version

Aneroid pressure h: 1150
Speed rpm : 1050
Del. quantity cm3/ : 229.0...232.0
1000 s: (226.0...235.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1150
Speed rpm : 850
Del. quantity cm3/ : 247.0...251.0
1000 s: (244.0...254.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 14.40
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 200.0...220.0
1000 s: (196.0...224.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 b
Edition : 25.03.88
Replaces : 18.9.87
Test oil : ISO-4113

Combination no. : 0 402 648 824

Injection pump
Pump designation : PE8P120A320LS7801
EP type number : 0 412 628 806
Governor
Governor design. : RQV300..1050PA797
Governor no. : 0 421 813 532

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM442 LA

1st version kW : 320.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
Rack travel in mm : 20.00...21.00
Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.70...14.90

Del. quantity cm³/ : 22.0...22.2

100 s: (21.7...22.5)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.2...6.6

Del. quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.20...1.40

2nd speed rpm : 600
travel mm : 4.90...5.10

3rd speed rpm : 1075
travel mm : 7.40...7.60

4th speed rpm : 1100
travel mm : 8.00...8.20

5th speed rpm : 1150
travel mm : 9.00...9.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1125

Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 600
Aneroid pressure h: 680
Del.quantity : 220.0...222.0
1000 : (217.0...225.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 54...62

Testing:
1st rack travel in: 14.20
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1
Control lever
position degrees: 15...23

Testing:
Speed rpm : 100
Minimum rack travel: 7.90
Speed rpm : 300
Rack travel in mm : 6.20...6.40

CONSTANT REGULATION
Speed rpm : 300...500

TORQUE CONTROL
Dimension a mm : 0.40
2nd speed rpm : 1050
Rack travel in m: 15.20...15.40
3rd speed rpm : 850
Rack travel in m: 15.80...16.10

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 680
Rack travel mm : 14.70...14.90

Measurement
Speed 1/min : 600

1st pressure hPa : 310
Rack travel in m: 12.10...12.30
2nd pressure hPa : 470
Rack travel in m: 13.70...13.90

D03

3rd pressure hPa : 820
Rack travel in m: 14.90...15.00
4th pressure hPa : 1100
Rack travel in m: 15.90...16.00
5th pressure hPa : -
Rack travel in m: 11.40...11.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1150
Speed rpm : 1050
Del.quantity cm3/ : 228.0...234.0
1000 s: (225.0...237.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1150
Speed rpm : 850
Del.quantity cm3/ : 247.0...251.0
1000 s: (244.0...254.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 14.20
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 200.0...220.0
1000 s: (196.0...224.0)

Remarks:

:

Speed rpm : 1050
Aneroid pressure h: 1100
Del. quantity : 181.0...183.0
1000 : (178.0...186.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 59...67

Testing:
1st rack travel in: 11.80
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1
Control lever
position degrees: 7...15

Testing:
Speed rpm : 200
Minimum rack travel: 7.30
Speed rpm : 300
Rack travel in mm : 5.60...5.80

CONSTANT REGULATION

Speed rpm : 300...500

TORQUE CONTROL

Dimension a mm : 1.60
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 12.80...12.90
2nd speed rpm : 750
Rack travel in m: 14.40...14.60
3rd speed rpm : 950
Rack travel in m: 13.50...13.60
4th speed rpm : 830
Rack travel in m: 14.30...14.50

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : -
Rack travel mm : 11.20...11.50

Measurement
Speed 1/min : 600

1st pressure hPa : 420

DOS

Rack travel in m: 11.90...12.10
2nd pressure hPa : 600
Rack travel in m: 13.60...13.80

START CUT-OUT

Speed 1/min : 270 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1100
Speed rpm : 700
Del. quantity cm3/ : 213.0...217.0
1000 s: (210.0...220.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1100
Speed rpm : 1050
Del. quantity cm3/ : 152.0...154.0 *
1000 s: (149.0...157.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm3/ : 143.0...145.0
1000 s: (140.0...148.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.80
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 180.0...200.0
1000 s: (176.0...204.0)

Remarks:

* = Set at reduced-delivery stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 i
Edition : 22.04.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 102 648 843

Injection pump
Pump designation : PE8P120A320LS7815
EP type number : 0 412 628 827
Governor
Governor design. : RQV350..1050PA870-2
Governor no. : 0 421 813 687

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM442LA

1st version kW : 350.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (5.15...5.35)
Rack travel in mm : 20.00...21.00
Firing order : 8- 7- 2- 6- 3- 5-
4- 1

Phasing : 0-45-90-135-180-225-
270-315
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 15.10...15.20

Del. quantity cm³/ : 25.4...25.6

100 s: (25.1...25.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0
Rack travel in mm : 5.0...5.6
Del. quantity cm³/ : 1.6...2.2
100 s: (1.3...2.5)
Spread cm³ : 0.6
100 s: (1.0)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
travel mm : 1.90...2.10
2nd speed rpm : 700
travel mm : 4.10...4.50
3rd speed rpm : 1100
travel mm : 7.60...8.00
4th speed rpm : 1200
travel mm : 9.50...9.90

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1150
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050
Aneroid pressure h: 1700
Del.quantity : 254.0...256.0
1000 : (251.0...259.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 61...69

Testing:

1st rack travel in: 14.10
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 9...17

Testing:

Speed rpm : 200
Minimum rack trave: 7.70
Speed rpm : 350
Rack travel in mm : 5.00...5.60

CONSTANT REGULATION

Speed rpm : 350...600

TORQUE CONTROL

Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 15.10...15.20
2nd speed rpm : 1000
Rack travel in m: 15.20...15.40
3rd speed rpm : 930
Rack travel in m: 15.40...15.50

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 14.50...14.70

Measurement

Speed 1/min : 600

1st pressure hPa : 330
Rack travel in m: 10.20...10.40
2nd pressure hPa : 600

D07

Rack travel in m: 13.10...13.30
3rd pressure hPa : 1260
Rack travel in m: 14.70...14.90
4th pressure hPa : 1400
Rack travel in m: 15.10...15.30
5th pressure hPa : -
Rack travel in m: 8.80...9.20

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm3/ : 239.0...241.0
1000 s: (236.0...244.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1700
Speed rpm : 900
Del.quantity cm3/ : 264.0...267.0
1000 s: (261.0...270.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 700
Speed rpm : 1050
Del.quantity cm3/ : 194.0...196.0 *
1000 s: (191.0...199.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 139.0...141.0
1000 s: (136.0...144.0)
Spread cm3 : 8.00
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 14.10
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 260.0...280.0
1000 s: (256.0...284.0)

Remarks:

:

* = Set at reduced-delivery stop.

Note remarks

Combination no. : 0 402 648 845

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM442 LA

1st version kW : 353.0
Rated speed : 2100

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening pressure, bar : 207...210

Orifice plate
diameter mm : 0.8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

Test pressure, bar: 25...27

```
Prestroke mm      : 5.20...5.30
                   : (5.15...5.35)
Rack travel in mm : 20.00...21.00
Firing order      : 8- 7- 2- 6- 3- 5-
                   : 4- 1
```

Phasing : 0-45-90-135-180-225-
270-315
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

1st speed rpm : 600

Rack travel in mm : 13.60...13.80

Del.quantity cm3/ : 23.4...23.7

100 s: (23.1...24.0)

Spread cm³ : 0.5

100 s: (0.9)

```

2nd speed      rpm : 300.0
Rack travel in mm : 5.9...6.5
Del.quantity   cm3/ : 1.6...2.2
               100 s : (1.3...2.5)
Spread         cm3 : 0.6
               100 s : (1.0)

```

(B) Setting of injection pump
with governor

1st speed	rpm	: 300
travel mm		: 1.20...1.40
2nd speed	rpm	: 800
travel mm		: 5.80...6.10
3rd speed	rpm	: 1120
travel mm		: 8.20...8.80
4th speed	rpm	: 1180
travel mm		: 9.60...10.40

Control-lever position

Speed rpm : 1100
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600
Aneroid pressure h : 900
Del. quantity : 234.0...237.0
1000 : (231.0...240.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 53...61

Testing:

1st rack travel in: 13.40
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 18...26

Testing:

Speed rpm : 200
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 5.90...6.50

CONSTANT REGULATION

Speed rpm : 300...500

TORQUE CONTROL

Dimension a mm : 1.30
2nd speed rpm : 1050
Rack travel in m: 14.40...14.60
3rd speed rpm : 800
Rack travel in m: 14.90...15.10

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 600
Pressure hPa : 900
Rack travel mm : 13.60...13.80

Measurement

Speed 1/min : 600

1st pressure hPa : 350
Rack travel in m: 11.10...11.30
2nd pressure hPa : 650
Rack travel in m: 12.90...13.00
3rd pressure hPa : 1350
Rack travel in m: 14.50...14.70

4th pressure hPa : 1500
Rack travel in m: 14.80...14.90
5th pressure hPa : -
Rack travel in m: 9.90...10.20

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1600
Speed rpm : 1050
Del. quantity cm3/ : 252.0...256.0
1000 s: (249.0...259.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1600
Speed rpm : 800
Del. quantity cm3/ : 263.0...267.0
1000 s: (260.0...270.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm3/ : 145.0...147.0
1000 s: (142.0...150.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack travel: 13.40
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 240.0...260.0
1000 s: (236.0...264.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 m
Edition : 16.05.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 648 849

Injection pump
Pump designation : PE8P120A32QLS7810
EP type number : 0 412 628 819
Governor
Governor design. : RQV300..1050PA797-7
Governor no. : 0 421 813 707

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM442 LA

1st version kW : 368.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (5.15...5.35)

Rack travel in mm : 19.50...21.00

Firing order : 8- 7- 2- 6- 3- 5-
4- 1

Phasing : 0-45-90-135-180-225-
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.30...14.50

Del. quantity cm³/ : 23.9...24.1

100 s: (23.6...24.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.2...6.6

Del. quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.20...1.40

2nd speed rpm : 800
travel mm : 5.80...6.10

3rd speed rpm : 1120
travel mm : 8.20...8.80

4th speed rpm : 1180
travel mm : 9.60...10.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1100

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600
Aneroid pressure h: 900
Del. quantity : 239.0...241.0
1000 : (236.0...244.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 56...64

Testing:

1st rack travel in: 14.10
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1165...1195
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 18...26

Testing:

Speed rpm : 200
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 5.80...6.10

CONSTANT REGULATION

Speed rpm : 300...500

TORQUE CONTROL

Dimension a mm : 0.25
2nd speed rpm : 1050
Rack travel in m: 15.10...15.30
3rd speed rpm : 800
Rack travel in m: 13.30...15.50

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 900
Rack travel mm : 14.30...14.50

Measurement

Speed 1/min : 600

1st pressure hPa : 320
Rack travel in m: 9.90...10.10
2nd pressure hPa : 620
Rack travel in m: 13.00...13.20
3rd pressure hPa : 1100
Rack travel in m: 14.40...14.50

4th pressure hPa : -
Rack travel in m: 8.70...8.90

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 1050
Del. quantity cm3/ : 257.0...260.0
1000 s: (254.0...263.0)
Spread cm3 : 8.00
1000 s: (12.)
Aneroid pressure h: 1500
Speed rpm : 800
Del. quantity cm3/ : 265.0...269.0
1000 s: (262.0...272.0)
Spread cm3 : 8.00
1000 s: (12.00)
Speed rpm : 500
Del. quantity cm3/ : 133.0...135.0
1000 s: (130.0...138.0)
Spread cm3 : 8.00
1000 s: (12.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 14.10
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 220.0...240.0
1000 s: (216.0...244.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 21,9 y 2
Edition : 13.06.88
Replaces : 12.11.87
Test oil : ISO-4113

Combination no. : 0 402 670 805

Injection pump
Pump designation : PE12P120A320LS7807-2
EP type number : 0 412 620 812
Governor
Governor design. : RSV375..1050POA535-1
Governor no. : 0 421 833 282

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM 444 LA

1st version kW : 491.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 150...170

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (5.15...5.35)
Rack travel in mm : 9.00...12.00
Firing order : 12- 1- 5- 9- 8- 3-
4- 11- 10- 2- 6- 7

Phasing : 0-45-60-105-120-165-
180-225-240-285-300-
345

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 12

BASIC SETTING

1st speed rpm : 650

Rack travel in mm : 14.70...14.90

Del. quantity cm³/ : 21.6...21.9

100 s: (21.3...22.2)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 375.0

Rack travel in mm : 5.5...5.8

Del. quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 650

Aneroid pressure h: 800

Del. quantity : 216.0...219.0

1000 : (213.0...222.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 36...44

Testing:
1st rack travel in: 13.70
Speed rpm : 1070...1080
2nd rack travel in: 4.00
Speed rpm : 1130...1160
4th rack travel in: 1400
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 13...21
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 5.6

Testing:
Speed rpm : 100
Minimum rack travel: 9.50
Speed rpm : 375
Rack travel in mm : 5.50...5.80

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1030
Rack travel in m: 14.70...14.90
2nd speed rpm : 925
Rack travel in m: 15.10...15.30
3rd speed rpm : 830
Rack travel in m: 15.50...15.70

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 800
Rack travel mm : 14.70...14.90

Measurement
Speed 1/min : 600

1st pressure hPa : 350
Rack travel in m: 12.20...12.40
2nd pressure hPa : 550
Rack travel in m: 13.70...13.90
3rd pressure hPa : 1000
Rack travel in m: 15.00...15.20
4th pressure hPa : 1100
Rack travel in m: 15.40...15.60
5th pressure hPa : -
Rack travel in m: 10.30...10.60

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1250
Speed rpm : 1030
Del.quantity cm3/ : 221.0...223.0
1000 s: (218.0...226.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1250
Speed rpm : 800
Del.quantity cm3/ : 237.0...241.0
1000 s: (234.0...244.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 134.0...136.0
1000 s: (131.0...139.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.70
Speed rpm : 1070...1080

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 240.0...260.0
1000 s: (236.0...264.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 21,9 y 3
Edition : 08.06.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 670 806

Injection pump
Pump designation : PE12P120A32QLS7807-2
EP type number : 0 412 620 812
Governor
Governor design. : RSV350..10SOP0A538
Governor no. : 0 421 833 300

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM 444 A

1st version kW : 390.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 150...170

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
(5.15...5.35)
Rack travel in mm : 9.00...12.00
Firing order : 12- 1- 5- 9- 8- 3-
4- 11- 10- 2- 6- 7

Phasing : 0-45-60-105-120-165-
180-225-240-285-300-
345

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 12

BASIC SETTING

1st speed rpm : 1030

Rack travel in mm : 12.40...12.50

Del. quantity cm³/ : 17.2...17.4

100 s: (16.9...17.7)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.6...5.8

Del. quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1030

Aneroid pressure h: 900

Del. quantity : 172.0...174.0

1000 : (169.0...177.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 36...44

Testing:
1st rack travel in: 11.40
Speed rpm : 1070...1080
2nd rack travel in: 4.00
Speed rpm : 1130...1160
4th rack travel in: 1400
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 13...21
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.7

Testing:
Speed rpm : 100
Minimum rack travel: 9.50
Speed rpm : 350
Rack travel in mm : 5.60...5.80

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1030
Rack travel in m: 12.40...12.50
2nd speed rpm : 950
Rack travel in m: 12.90...13.10
3rd speed rpm : 875
Rack travel in m: 13.40...13.60
4th speed rpm : 750
Rack travel in m: 13.90...14.10

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.50...10.80

Measurement
Speed 1/min : 500

1st pressure hPa : 300
Rack travel in m: 11.30...11.50
2nd pressure hPa : 500
Rack travel in m: 12.00...12.20

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 700
Del. quantity cm³/ : 206.0...210.0
1000 s: (203.0...213.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 136.0...138.0
1000 s: (133.0...141.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.40
Speed rpm : 1070...1080

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 220.0...240.0
1000 s: (216.0...244.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 g 3
Edition : 08.06.88
Replaces : 7.12.87
Test oil : ISO-4113

Combination no. : 0 402 678 808

Injection pump
Pump designation : PE8P120A320LS7801-2
EP type number : 0 412 628 825
Governor
Governor design. : RSV350...1050POA535
Governor no. : 0 421 833 281

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM442LA

1st version kW : 320.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness : 6.00x1.50x1000
x Length mm

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (4.15...5.35)
Rack travel in mm : 9.00...12.00
Firing order : 8- 7- 2- 6- 3- 5-
4- 1

Phasing : 0-45-90-135-180-225-
270-315
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.50...14.60

Del. quantity cm³/ : 21.5...21.8

100 s: (21.2...22.1)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0
Rack travel in mm : 5.6...5.8
Del. quantity cm³/ : 1.6...2.2
100 s: (1.3...2.5)
Spread cm³ : 0.8
100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...0.70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 600
Aneroid pressure h: 750
Del. quantity : 215.0...218.0
1000 : (212.0...221.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 36...44

Testing:

1st rack travel in: 14.00
Speed rpm : 1070...1080
2nd rack travel in: 4.00
Speed rpm : 1130...1160
4th rack travel in: 1400
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 13...21
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.7

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 350
Rack travel in mm : 5.60...5.80
Rack travel in mm : 2.00
Speed rpm : 360...420

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1030
Rack travel in m: 15.00...15.20
2nd speed rpm : 850
Rack travel in m: 15.70...15.90
3rd speed rpm : 925
Rack travel in m: 15.40...15.60

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 600
Pressure hPa : 750
Rack travel mm : 14.50...14.60

Measurement

Speed 1/min : 600

1st pressure hPa : 400
Rack travel in m: 12.20...12.40
2nd pressure hPa : 550
Rack travel in m: 13.70...13.90
3rd pressure hPa : 950
Rack travel in m: 14.90...15.10
4th pressure hPa : 1050
Rack travel in m: 15.30...15.50
5th pressure hPa : -

Rack travel in m: 11.20...11.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1250
Speed rpm : 1030
Del. quantity cm3/ : 230.0...232.0
1000 s: (227.0...235.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1250
Speed rpm : 850
Del. quantity cm3/ : 242.0...245.0
1000 s: (239.0...248.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm3/ : 147.0...149.0
1000 s: (144.0...152.0)
Spread cm3 : 8.00
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 14.00
Speed rpm : 1070...1080

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 240.0...260.0
1000 s: (236.0...264.0)

Remarks:

:

Observe VDT-I-420/120

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,1a11
Edition : 30.05.89
Replaces : 10.2.89
Test oil : ISO-4113

Combination no. : 0 402 736 800

Injection pump
Pump designation : PES6P120A720/3RS7135
-1

EP type number : 0 412 726 818
Governor
Governor design. : RQV325..1050PA848-20
K

Governer no. : 0 421 815 203

Customer-spec. information
Customer : MACK

Engine : EM6 300 2VH

1st version kW : 224.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 2 417 413 011

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values ____

BEGINNING OF DELIVERY

D19

Test pressure, bar : 17...19

Prestroke mm : 2.75...2.85
: (2.70...2.90)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Phasing
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.90...13.00

Del. quantity cm³/ : 19.9...20.1

100 s : (19.6...20.4)

Spread cm³ : 0.5

100 s : (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.8...5.0

Del. quantity cm³/ : 3.8...4.4

100 s : (3.6...4.6)

Spread cm³ : 0.8

100 s : (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
travel mm : 1.40...1.60

2nd speed rpm : 450
travel mm : 2.50...2.80

3rd speed rpm : 800
travel mm : 4.80...5.00

4th speed rpm : 1050
travel mm : 7.30...7.60

5th speed rpm : 1200
travel mm : 9.40...9.60

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1

Speed rpm : 1200
Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050
Aneroid pressure h: 900
Del.quantity : 199.0...201.0
1000 : (196.0...204.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 56...64

Testing:

1st rack travel in: 11.90
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 10...18

Testing:

Speed rpm : 275
Minimum rack travel: 6.30
Speed rpm : 325
Rack travel in mm : 4.80...5.00

CONSTANT REGULATION

Speed rpm : 325...600

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050
Rack travel in m: 12.90...13.00
2nd speed rpm : 630
Rack travel in m: 13.00...13.10
3rd speed rpm : 500
Rack travel in m: 0.00...12.60

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 630
Pressure hPa : 900
Rack travel mm : 13.00...13.10

Measurement

Speed 1/min : 630

1st pressure hPa : -
Rack travel in m: 7.80...8.20
2nd pressure hPa : 190
Rack travel in m: 9.10...9.20

3rd pressure hPa : 410
Rack travel in m: 11.40...11.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 630
Del.quantity cm3/ : 213.0...219.0
1000 s: (210.0...222.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 400
Del.quantity cm3/ : 121.0...125.0
1000 s: (119.0...127.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.90
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 110.0...150.0
1000 s: (100.0...160.0)
Rack travel in mm : 7.80...8.20

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.80...5.00
Del.quantity cm3/ : 38.0...44.0
1000 s: (36.0...46.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

Delivery-valve spring pre-tension
3.0...3.2 mm.

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 10,0 c 2
 Edition : 29.04.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 745 801
 Injection pump
 Pump designation : PESSP120A720LS7101
 EP type number : 0 412 725 800
 Governor
 Governor design. : RQV300..1050PA759
 Governor no. : 0 421 813 489

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM429 LA

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...110

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 13.80...13.90

Del. quantity cm³/ : 20.1...20.3

100 s: (19.8...20.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.0...6.4

Del. quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.20...1.40

2nd speed rpm : 650

travel mm : 5.10...5.40

3rd speed rpm : 1100

travel mm : 7.90...8.30

4th speed rpm : 1180

travel mm : 9.50...10.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1110

Rack travel in mm : 15.10...17.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 700

Del. quantity : 201.0...203.0

1000 : (198.0...206.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 50...58

Testing:

1st rack travel in: 12.80
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 14...22

Testing:

Speed rpm : 200
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.00...6.20

CONSTANT REGULATION

Speed rpm : 300...400

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : -
Rack travel mm : 12.00...12.30

Measurement

Speed 1/min : 500

1st pressure hPa : 240
Rack travel in m: 12.30...12.40
2nd pressure hPa : 350
Rack travel in m: 13.30...13.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 600
Del. quantity cm³/ : 197.0...201.0
1000 s: (194.0...204.0)

Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 700
Speed rpm : 900
Del. quantity cm³/ : 204.0...208.0
1000 s: (201.0...211.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 157.0...159.0
1000 s: (154.0...162.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.80
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 160.0...180.0
1000 s: (156.0...184.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 10,0 c 1
 Edition : 03.04.87
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 745 802
 Injection pump
 Pump designation : PESSP120A72QLS7101
 EP type number : 0 412 725 800
 Governor
 Governor design. : RQ300/1050PA690-1
 Governor no. : 0 421 801 392

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM429 LA

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...110

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)

Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.50...12.60

Del. quantity cm3/ : 17.9...18.1

100 s: (17.6...18.4)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.0...6.4

Del. quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 700

Del. quantity : 179.0...181.0

1000 : (176.0...184.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 11.50

Speed rpm : 1095...1110

2nd rack travel in: 4.00

Speed rpm : 1135...1175

4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.1

Testing:

Speed rpm : 100
Minimum rack travel: 7.70
Speed rpm : 300
Rack travel in mm : 6.00...6.20
Rack travel in mm : 2.00
Speed rpm : 380...420

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 12.00...12.30

Measurement

Speed 1/min : 500

1st pressure hPa : 240
Rack travel in m: 12.10...12.20
2nd pressure hPa : 350
Rack travel in m: 12.30...12.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 600
Del. quantity cm³/ : 179.0...185.0
1000 s: (176.0...188.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 157.0...159.0
1000 s: (154.0...162.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

D24

1mm rack travel less than

full load rack tr: 11.50
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 160.0...180.0
1000 s: (156.0...184.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 10,0 g
Edition : 11.03.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 745 803
Injection pump
Pump designation : PESSP120A72OLS7152
EP type number : 0 412 725 801
Governor
Governor design. : RQ300/1050PA690-2
Governor no. : 0 421 801 427

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM429 LA

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (5.15...5.35)
Rack travel in mm : 20.00...21.00
Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 13.70...13.80

Del. quantity cm³/ : 20.9...21.1

100 s: (20.6...21.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.6

Del. quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 800

Del. quantity : 209.0...211.0

1000 : (206.0...214.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.70

Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.4

Testing:

Speed rpm : 200
Minimum rack travel: 8.30
Speed rpm : 300
Rack travel in mm : 6.30...6.60
Rack travel in mm : 2.00
Speed rpm : 365...405

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 11.20...11.50

Measurement

Speed 1/min : 500

1st pressure hPa : 250
Rack travel in m: 11.40...11.50
2nd pressure hPa : 500
Rack travel in m: 12.70...12.90

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800
Speed rpm : 600
Del. quantity cm³/ : 204.0...210.0
1000 s: (201.0...213.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 135.0...137.0
1000 s: (132.0...140.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

D26

1st version
1mm rack travel less than

full load rack tr: 12.70
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 10,0 r
Edition : 15.08.89
Replaces : 8.5.89
Test oil : ISO-4113

Combination no. : 0 402 745 807

Injection pump
Pump designation : PESSP120A720LS7174
EP type number : 0 412 725 806
Governor
Governor design. : RQ300/1050PA774-2
Governor no. : 0 421 801 450

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM449 A

1st version kW : 184.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _ _ _ _

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (5.15...5.35)
Rack travel in mm : 20.00...21.00
Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.10...14.30

Del. quantity cm³/ : 19.6...19.8

100 s: (19.3...20.1)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...7.0

Del. quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 650

Del. quantity : 196.0...198.0

1000 : (193.0...201.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.40
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.7

Testing:

Speed rpm : 200
Minimum rack trave: 8.70
Speed rpm : 300
Rack travel in mm : 6.40...7.00
Rack travel in mm : 2.00
Speed rpm : 485...525

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050
Rack travel in m: 14.40...14.60
2nd speed rpm : 750
Rack travel in m: 14.90...15.10

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 600
Pressure hPa : 650
Rack travel mm : 14.10...14.30

Measurement

Speed 1/min : 600

1st pressure hPa : 250
Rack travel in m: 12.20...12.40
2nd pressure hPa : 400
Rack travel in m: 13.50...13.70
3rd pressure hPa : 750
Rack travel in m: 14.20...14.30 *
4th pressure hPa : 850
Rack travel in m: 14.60...14.80
5th pressure hPa : -
Rack travel in m: 11.90...12.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1050
Del.quantity cm3/ : 208.0...211.0
1000 s: (205.0...214.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1200
Speed rpm : 750
Del.quantity cm3/ : 216.0...220.0
1000 s: (213.0...223.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 150.0...152.0
1000 s: (147.0...155.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.40
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 220.0...240.0
1000 s: (216.0...244.0)

Remarks:

:

* Increase in control-rod travel with respect to setting at least 0.1 mm

Note remarks

Combination no. : 0 402 745 808

TEST BENCH REQUIREMENTS

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

Test pressure, bar: 25...27

Time to cyl. no. : 5

Spread cm³ : 0.8
100 s: (1.2)

FULL LOAD DELIV. AT FULL LOAD STOP

```

1st version
Speed      rpm      : 600
Aneroid pressure h: 800
Del.quantity : 235.0...237.0
            1000    : (232.0...240.0)
Spread     cm3      : 5.00
            1000    : (9.00)

```

RATED SPEED

1st version

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.00
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.7

Testing:

Speed rpm : 200
Minimum rack travel: 7.60
Speed rpm : 300
Rack travel in mm : 5.60...5.90
Rack travel in mm : 2.00
Speed rpm : 370...410

TORQUE CONTROL

Dimension a mm : 0.65
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.00...13.20
2nd speed rpm : 750
Rack travel in m: 14.40...14.60

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 800
Rack travel mm : 13.60...13.80

Measurement

Speed 1/min : 600

1st pressure hPa : 200
Rack travel in m: 11.00...11.20
2nd pressure hPa : 450
Rack travel in m: 13.00...13.20
3rd pressure hPa : 1000
Rack travel in m: 13.70...13.80 *
4th pressure hPa : 1125
Rack travel in m: 14.10...14.30
5th pressure hPa : -
Rack travel in m: 10.00...10.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400
Speed rpm : 1050
Del. quantity cm³/ : 228.0...231.0
1000 s: (225.0...234.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1400
Speed rpm : 750
Del. quantity cm³/ : 250.0...254.0
1000 s: (247.0...257.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 146.0...148.0
1000 s: (143.0...151.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.00
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 220.0...240.0
1000 s: (216.0...244.0)

Remarks:

:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 10,0 m 2
 Edition : 16.06.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 745 809
 Injection pump
 Pump designation : PESSP120A72OLS7160
 EP type number : 0 412 725 802
 Governor
 Governor design. : RQV300..1050PA797-8
 Governor no. : 0 421 813 756

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM449 A

1st version kW : 184.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.10...13.30

Del. quantity cm3/ : 19.6...19.8

100 s: (19.3...20.1)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.7...6.3

Del. quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.10...1.30

2nd speed rpm : 600
 travel mm : 4.90...5.10

3rd speed rpm : 800
 travel mm : 5.80...6.10

4th speed rpm : 1100
 travel mm : 8.20...8.60

5th speed rpm : 1175
 travel mm : 9.50...10.10

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1070

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 600
Aneroid pressure h : 650
Del.quantity : 196.0...198.0
1000 : (193.0...201.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 53...61

Testing:
1st rack travel in: 12.60
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 16...24

Testing:
Speed rpm : 200
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 5.70...6.30

CONSTANT REGULATION
Speed rpm : 300...400

TORQUE CONTROL
Dimension a mm : 0.40
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.60...13.80
2nd speed rpm : 750
Rack travel in m: 14.00...14.20

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 650
Rack travel mm : 13.10...13.30

Measurement
Speed 1/min : 600

1st pressure hPa : 250
Rack travel in m: 11.20...11.40
2nd pressure hPa : 400
Rack travel in m: 12.50...12.70

3rd pressure hPa : 750
Rack travel in m: 13.20...13.30 *
4th pressure hPa : 850
Rack travel in m: 13.60...13.80
5th pressure hPa : -
Rack travel in m: 10.80...11.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 1050
Del.quantity cm3/ : 208.0...211.0
1000 s: (205.0...214.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1200
Speed rpm : 750
Del.quantity cm3/ : 216.0...220.0
1000 s: (213.0...223.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 150.0...152.0
1000 s: (147.0...155.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.60
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 220.0...240.0
1000 s: (216.0...244.0)

Remarks:
:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 10,0 o 2
 Edition : 15.08.89
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 745 810

Injection pump
 Pump designation : PES5P120A72QLS7163
 EP type number : 0 412 725 803
 Governor
 Governor design. : RQV300..1050PA797-9
 Governor no. : 0 421 813 757

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM449 LA

1st version kW : 221.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.60...13.80

Del. quantity cm3/ : 23.5...23.7

100 s: (23.2...24.0)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...5.9

Del. quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.10...1.30

2nd speed rpm : 600

travel mm : 4.90...5.10

3rd speed rpm : 800

travel mm : 5.80...6.10

4th speed rpm : 1100

travel mm : 8.20...8.60

5th speed rpm : 1175

travel mm : 9.50...10.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1070

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 600
Aneroid pressure h: 800
Del. quantity : 235.0...237.0
1000 : (232.0...240.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 52...60

Testing:
1st rack travel in: 12.00
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 16...24

Testing:
Speed rpm : 200
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 5.60...5.90

CONSTANT REGULATION
Speed rpm : 300...400

TORQUE CONTROL
Dimension a mm : 0.40
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.00...13.20
2nd speed rpm : 750
Rack travel in m: 14.40...14.60

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 800
Rack travel mm : 13.60...13.80

Measurement
Speed 1/min : 600

1st pressure hPa : 200
Rack travel in m: 11.00...11.20
2nd pressure hPa : 450
Rack travel in m: 13.00...13.20

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3rd pressure hPa : 1000
Rack travel in m: 13.70...13.80 *
4th pressure hPa : 1125
Rack travel in m: 14.10...14.30
5th pressure hPa : -
Rack travel in m: 10.00...10.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1400
Speed rpm : 1050
Del. quantity cm³/ : 228.0...231.0
1000 s: (225.0...234.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1400
Speed rpm : 750
Del. quantity cm³/ : 250.0...254.0
1000 s: (247.0...257.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 146.0...148.0
1000 s: (143.0...151.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.00
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 220.0...240.0
1000 s: (216.0...244.0)

Remarks:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 9,0 c
 Edition : 19.05.88
 Replaces : 15.5.87
 Test oil : ISO-4113

Combination no. : 0 402 746 801

Injection pump
 Pump designation : PE6P120A32ORS7103
 EP type number : 0 412 626 805
 Governor
 Governor design. : RQV200...1100PA712
 Governor no. : 0 421 813 442

Customer-spec. information
 Customer : SAAB-SCANIA

Engine : DSC9 01

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.50...4.60
 : (4.45...4.65)
 Rack travel in mm : 6.00...8.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 7.00...12.50
 & maximum rack tra: 21.00
 Difference ° CS : 1.00...1.70

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.50...12.60

Del. quantity cm³/ : 17.8...18.0

100 s: (17.5...18.3)

Spread cm³ : 0.7

100 s: (1.0)

2nd speed rpm : 225.0

Rack travel in mm : 4.6...4.8

Del. quantity cm³/ : 1.5...1.9

100 s: (-)

Spread cm³ : 0.3

100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225

travel mm : 1.10...1.50

2nd speed rpm : 350

travel mm : 2.60...3.20

3rd speed rpm : 650

travel mm : 4.30...4.90

4th speed rpm : 1145

travel mm : 7.50...7.70

5th speed rpm : 1300

travel mm : 8.90...9.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1160

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 700
Aneroid pressure h: 900
Del. quantity : 178.0...180.0
1000 : (175.0...183.0)
Spread cm3 : 7.00
1000 : (10.00)

RATED SPEED

1st version
Control lever
position degrees: 59...67

Testing:
1st rack travel in: 11.50
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1285...1315
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 6...14

Testing:
Speed rpm : 100
Minimum rack travel: 6.10
Speed rpm : 225
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 295...355

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.50...12.60

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.20...10.30
2nd pressure hPa : 435
Rack travel in m: 11.90...12.00
3rd pressure hPa : 335
Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 1100

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Del. quantity cm3/ : 177.0...185.0
1000 s: (175.0...187.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm3/ : 138.0...142.0
1000 s: (136.0...144.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.50
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 240.0...290.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 225
Rack travel in mm : 4.60...4.80
Del. quantity cm3/ : 15.0...19.0
Spread cm3 : 3.00
1000 s: (6.00)

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Check and set without RO80 diaphragm

For comb. with letter index see
VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over
on Oct. 4, 1984

Start of delivery - engine: 18° before
TDC at control-rod travel =
6.00...8.00 mm

Firing sequence of engine:
1-5-3-6-2-4.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 12,0 a 1
Edition : 07.03.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 746 806

Injection pump
Pump designation : PES6P120A720LS7114
EP type number : 0 412 726 802
Governor
Governor design. : RQ300/950PA774-1
Governor no. : 0 421 801 419

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM447LA

1st version kW : 350.0
Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (5.15...5.35)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.40...14.60

Del. quantity cm³/ : 24.0...24.2

100 s: (23.7...24.5)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.0...6.3

Del. quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 650

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 750

Del. quantity : 240.0...242.0

1000 : (237.0...245.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 650

Rack travel in mm : 20.0

Testing:
1st rack travel in: 12.70
Speed rpm : 995...1010
2nd rack travel in: 4.00
Speed rpm : 1065...1095
4th rack travel in: 1150
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.1

Testing:
Speed rpm : 100
Minimum rack travel: 7.80
Speed rpm : 300
Rack travel in mm : 6.00...6.30
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

2nd speed rpm : 950
Rack travel in m: 13.70...13.90
3rd speed rpm : 750
Rack travel in m: 14.90...15.10

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 750
Rack travel mm : 14.40...14.60

Measurement

Speed 1/min : 600
1st pressure hPa : 300
Rack travel in m: 11.60...11.80
2nd pressure hPa : 500
Rack travel in m: 13.50...13.70
3rd pressure hPa : 920
Rack travel in m: 14.50...14.70
4th pressure hPa : -
Rack travel in m: 10.70...10.90

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1300
Speed rpm : 950

Del.quantity cm3/ : 232.0...236.0
1000 s: (229.0...239.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1300
Speed rpm : 750
Del.quantity cm3/ : 250.0...254.0
1000 s: (247.0...257.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 139.0...141.0
1000 s: (136.0...144.0)
Spread cm3 : 8.00
1000 s: (12.00)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.70
Speed rpm : 995...1010

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 230.0...250.0
1000 s: (226.0...254.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,7 f
Edition : 08.06.88
Replaces : 31.7.87
Test oil : ISO-4113

Combination no. : 0 402 746 808

Injection pump
Pump designation : PES6P120A72OLS7107
EP type number : 0 412 726 801
Governor
Governor design. : RQ300/1100PA805
Governor no. : 0 421 801 352

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM447na

1st version kW : 206.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (5.15...5.35)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 13.40...13.50

Del. quantity cm³/ : 19.7...19.9

100 s: (19.4...20.2)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.8...6.2

Del. quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 650

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 750

Del. quantity : 197.0...199.0

1000 : (194.0...202.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 650

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.40
Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1220...1250
4th rack travel in: 1350
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.9

Testing:

Speed rpm : 100
Minimum rack travel: 7.50
Speed rpm : 300
Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.00
Speed rpm : 380...420

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 11.00...11.20

Measurement

Speed 1/min : 500

1st pressure hPa : 230
Rack travel in m: 11.30...11.50
2nd pressure hPa : 370
Rack travel in m: 11.70...11.90

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 750
Speed rpm : 600
Del.quantity cm3/ : 193.0...196.0
1000 s: (190.0...199.0)
Spread cm3 : 8.00
1000 s: (12.)
Speed rpm : 500
Del.quantity cm3/ : 149.0...151.0
1000 s: (146.0...154.0)
Spread cm3 : 8.00
1000 s: (12.00)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.40
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 150.0...170.0
1000 s: (146.0...174.0)

Remarks:

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,1 a
 Edition : 08.04.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 746 810
 Injection pump
 Pump designation : PES6P120A720RS7135
 EP type number : 0 412 726 807
 Governor
 Governor design. : RQV325...900PA848K
 Governor no. : 0 421 815 168

Customer-spec. information
 Customer : MACK

Engine : E6-350 4VH

1st version kW : 261.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 011

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 10.30...10.70
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 13.90...14.00

Del. quantity cm3/ : 23.3...23.5

100 s: (23.0...23.8)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.0...4.2

Del. quantity cm3/ : 3.2...3.8

100 s: (3.0...4.0)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 1.20...1.40

2nd speed rpm : 450

travel mm : 3.10...3.30

3rd speed rpm : 850

travel mm : 5.90...6.10

4th speed rpm : 1000

travel mm : 7.50...7.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1130

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 900

Del. quantity : 233.0...235.0

1000 : (230.0...238.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 53...61

Testing:

1st rack travel in: 12.90
Speed rpm : 950...960
2nd rack travel in: 4.00
Speed rpm : 1075...1105
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 7...15

Testing:

Speed rpm : 275
Minimum rack travel: 5.50
Speed rpm : 325
Rack travel in mm : 4.00...4.20

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 900
Rack travel in m: 13.90...14.00
2nd speed rpm : 625
Rack travel in m: 14.10...14.20
3rd speed rpm : 800
Rack travel in m: 14.00...14.10
4th speed rpm : 500
Rack travel in m: 0.00...13.50

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 625
Pressure hPa : 900
Rack travel mm : 14.10...14.20

Measurement

Speed 1/min : 625

1st pressure hPa : -

Rack travel in m: 8.30...8.70

2nd pressure hPa : 275

Rack travel in m: 10.00...10.10

3rd pressure hPa : 570

Rack travel in m: 12.30...12.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 625
Del.quantity cm³/ : 254.0...260.0
1000 s: (251.0...263.0)
Spread cm³ : 8.00
1000 s: (12.00)
Aneroid pressure h: -
Speed rpm : 400
Del.quantity cm³/ : 136.0...140.0
1000 s: (134.0...142.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.90
Speed rpm : 950...960

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...180.0
1000 s: (130.0...190.0)
Rack travel in mm : 8.30...8.70

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.00...4.20
Del.quantity cm³/ : 32.0...38.0
1000 s: (30.0...40.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

Delivery-valve spring pre-tension
3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,1 a1
 Edition : 08.04.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 746 814
 Injection pump
 Pump designation : PES6P120A720RS7135
 EP type number : 0 412 726 807
 Governor
 Governor design. : RQV325...850PA848-1K
 Governor no. : 0 421 815 169

Customer-spec. information
 Customer : MACK

Engine : E6-300 4VH

1st version kW : 224.0
 Rated speed : 1700

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 011

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 10.30...10.70
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 12.90...13.00

Del. quantity cm³/ : 20.0...20.2

100 s: (19.7...20.5)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.5...4.7

Del. quantity cm³/ : 3.2...3.8

100 s: (3.0...4.0)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 1.20...1.40

2nd speed rpm : 450

travel mm : 2.80...3.10

3rd speed rpm : 850

travel mm : 6.20...6.40

4th speed rpm : 1000

travel mm : 7.70...7.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1100

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 900

Del. quantity : 200.5...202.5

1000 : (197.5...205.5)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 52...60

Testing:
1st rack travel in: 11.90
Speed rpm : 900...910
2nd rack travel in: 4.00
Speed rpm : 1025...1055
4th rack travel in: 1100
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 7...15

Testing:
Speed rpm : 275
Minimum rack travel: 6.00
Speed rpm : 325
Rack travel in mm : 4.50...4.70

CONSTANT REGULATION
Speed rpm : 325...520

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 850
Rack travel in m: 12.90...13.00
2nd speed rpm : 700
Rack travel in m: 13.30...13.50
3rd speed rpm : 600
Rack travel in m: 13.50...13.70
4th speed rpm : 500
Rack travel in m: 0.00...13.10

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 900
Rack travel mm : 13.50...13.70

Measurement
Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 9.40...9.80
2nd pressure hPa : 280
Rack travel in m: 10.40...10.50
3rd pressure hPa : 510
Rack travel in m: 12.20...12.50

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 700
Del.quantity cm³/ : 217.0...223.0
1000 s: (214.0...226.0)
Aneroid pressure h: 900
Speed rpm : 600
Del.quantity cm³/ : 233.0...239.0
1000 s: (230.0...242.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 400
Del.quantity cm³/ : 147.0...151.0
1000 s: (145.0...153.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.90
Speed rpm : 900...910

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 170.0...210.0
1000 s: (160.0...220.0)
Rack travel in mm : 9.40...9.80

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.50...4.70
Del.quantity cm³/ : 32.0...38.0
1000 s: (30.0...40.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,1 a2
 Edition : 15.04.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 746 815
 Injection pump
 Pump designation : PES6P120A72ORS7135
 EP type number : 0 412 726 807
 Governor
 Governor design. : RQV325...850PA848-2K
 Governor no. : 0 421 815 170

Customer-spec. information
 Customer : MACK

Engine : E6-275 4VH

1st version kW : 202.0
 Rated speed : 1700

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 011

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 10.30...10.70
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 12.00...12.10

Del. quantity cm3/ : 17.9...18.1

100 s: (17.6...18.4)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.5...4.7

Del. quantity cm3/ : 3.2...3.8

100 s: (3.0...4.0)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 1.20...1.40

2nd speed rpm : 450

travel mm : 2.80...3.10

3rd speed rpm : 850

travel mm : 6.20...6.40

4th speed rpm : 1000

travel mm : 7.70...7.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1110

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 900

Del. quantity : 179.0...181.0

1000 : (176.0...184.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 52...60

Testing:
1st rack travel in: 11.00
Speed rpm : 900...910
2nd rack travel in: 4.00
Speed rpm : 1025...1055
4th rack travel in: 1150
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 7...15

Testing:
Speed rpm : 275
Minimum rack travel: 6.00
Speed rpm : 325
Rack travel in mm : 4.50...4.70

CONSTANT REGULATION
Speed rpm : 325...520

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 850
Rack travel in m: 12.00...12.10
2nd speed rpm : 600
Rack travel in m: 12.60...12.70
3rd speed rpm : 700
Rack travel in m: 12.50...12.70
4th speed rpm : 500
Rack travel in m: 0.00...12.40

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 900
Rack travel mm : 12.60...12.70

Measurement
Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 9.50...9.90
2nd pressure hPa : 215
Rack travel in m: 10.30...10.40
3rd pressure hPa : 360
Rack travel in m: 11.50...11.90

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 600
Del.quantity cm³/ : 209.0...215.0
1000 s: (206.0...218.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 400
Del.quantity cm³/ : 144.0...148.0
1000 s: (142.0...150.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.00
Speed rpm : 900...910

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 160.0...200.0
1000 s: (150.0...210.0)
Rack travel in mm : 9.50...9.90

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.50...4.70
Del.quantity cm³/ : 32.0...38.0
1000 s: (30.0...40.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,1 a3
 Edition : 07.01.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 746 816
 Injection pump
 Pump designation : PES6P120A720RS7135
 EP type number : 0 412 726 807
 Governor
 Governor design. : RQV325...875PA848-3K
 Governor no. : 0 421 815 171

Customer-spec. information
 Customer : MACK

Engine : EM6-250L 4VH

1st version kW : 186.0
 Rated speed : 1750

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 011

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 10.50...10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 875

Rack travel in mm : 10.80...10.90

Del. quantity cm³/ : 16.0...16.2

100 s: (15.7...16.5)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.5...4.7

Del. quantity cm³/ : 3.9...4.5

100 s: (3.7...4.7)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
 travel mm : 1.20...1.40

2nd speed rpm : 450
 travel mm : 2.80...3.10

3rd speed rpm : 850
 travel mm : 6.20...6.40

4th speed rpm : 1000
 travel mm : 7.70...7.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1100

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 875

Aneroid pressure h: 1200

Del. quantity : 160.0...162.0

1000 : (157.0...165.0)

Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 52...60

Testing:
1st rack travel in: 9.80
Speed rpm : 925...935
2nd rack travel in: 4.00
Speed rpm : 1010...1040
4th rack travel in: 1100
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 9...17

Testing:
Speed rpm : 275
Minimum rack travel: 6.00
Speed rpm : 325
Rack travel in mm : 4.50...4.70

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 875
Rack travel in m: 10.80...10.90
2nd speed rpm : 510
Rack travel in m: 13.00...13.20
3rd speed rpm : 600
Rack travel in m: 12.40...12.60
4th speed rpm : 700
Rack travel in m: 11.70...11.90
5th speed rpm : 550
Rack travel in m: 0.00...13.10

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 510
Pressure hPa : 1200
Rack travel mm : 13.00...13.20

Measurement
Speed 1/min : 510

1st pressure hPa : -
Rack travel in m: 9.20...9.40
2nd pressure hPa : 215
Rack travel in m: 10.30...10.40

3rd pressure hPa : 435
Rack travel in m: 12.20...12.60

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 510
Del.quantity cm3/ : 237.0...243.0
1000 s: (234.0...246.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 400
Del.quantity cm3/ : 146.0...150.0
1000 s: (144.0...152.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.80
Speed rpm : 925...935

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 165.0...205.0
1000 s: (155.0...215.0)
Rack travel in mm : 9.20...9.40

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.50...4.70
Del.quantity cm3/ : 39.0...45.0
1000 s: (37.0...47.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,1 a4
 Edition : 12.11.87
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 746 817
 Injection pump
 Pump designation : PES6P120A720RS7135
 EP type number : 0 412 726 807
 Governor
 Governor design. : RQV325...900PA848-4K
 Governor no. : 0 421 815 173

Customer-spec. information
 Customer : MACK

Engine : EC6-350 4VH

1st version kW : 261.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 011

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 10.50...10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 14.60...14.70

Del. quantity cm³/ : 23.8...24.0

100 s: (23.5...24.3)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.9...5.1

Del. quantity cm³/ : 3.9...4.5

100 s: (3.7...4.7)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
 travel mm : 1.20...1.40

2nd speed rpm : 450
 travel mm : 3.10...3.30

3rd speed rpm : 850
 travel mm : 5.90...6.10

4th speed rpm : 1000
 travel mm : 7.50...7.70

GUIDE SLEEVE POSITION

Control-lever position
 Degree: 63...65

Speed rpm : 1130
 Rack travel in mm : 6.50...8.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 900
 Aneroid pressure h: 1200
 Del. quantity : 238.0...240.0
 1000 : (235.0...243.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 53...61

Testing:
1st rack travel in: 13.60
Speed rpm : 950...960
2nd rack travel in: 4.00
Speed rpm : 1090...1120
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 7...15

Testing:
Speed rpm : 275
Minimum rack travel: 6.60
Speed rpm : 325
Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 14.60...14.70
2nd speed rpm : 625
Rack travel in m: 15.10...15.20
3rd speed rpm : 800
Rack travel in m: 14.80...14.90
4th speed rpm : 500
Rack travel in m: 0.00...14.50

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 625
Pressure hPa : 1200
Rack travel mm : 15.10...15.20

Measurement

Speed 1/min : 625

1st pressure hPa : -
Rack travel in m: 8.90...9.10
2nd pressure hPa : 280
Rack travel in m: 10.40...10.50
3rd pressure hPa : 650
Rack travel in m: 13.30...13.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 625
Del. quantity cm³/ : 262.0...268.0
1000 s: (259.0...271.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 400
Del. quantity cm³/ : 130.5...134.5
1000 s: (128.5...136.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.60
Speed rpm : 950...960

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 150.0...190.0
1000 s: (140.0...200.0)
Rack travel in mm : 8.90...9.10

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.90...5.10
Del. quantity cm³/ : 39.0...45.0
1000 s: (37.0...47.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

Delivery-valve spring pre-tension
3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,1 a5
 Edition : 12.11.87
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 746 818
 Injection pump
 Pump designation : PES6P120A72ORS7135
 EP type number : 0 412 726 807
 Governor
 Governor design. : RQV32S...875PA848-SK
 Governor no. : 0 421 815 174

Customer-spec. information
 Customer : MACK

Engine : EM6-275L 4VH

1st version kW : 202.0
 Rated speed : 1750

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 2 417 413 011

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values ____

BEGINNING OF DELIVERY

Test pressure, bar : 17...19

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 10.50...10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 875

Rack travel in mm : 12.20...12.30

Del. quantity cm3/ : 18.7...18.9

100 s : (18.4...19.2)

Spread cm3 : 0.5

100 s : (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.6...4.8

Del. quantity cm3/ : 3.7...4.3

100 s : (3.5...4.5)

Spread cm3 : 0.8

100 s : (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 1.20...1.40

2nd speed rpm : 450

travel mm : 2.80...3.10

3rd speed rpm : 850

travel mm : 6.20...6.40

4th speed rpm : 1000

travel mm : 7.70...7.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: 63...65

Speed rpm : 1085

Rack travel in mm : 8.00...10.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 875

Aneroid pressure h: 1200

Del. quantity : 187.0...189.0

1000 : (184.0...192.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 52...60

Testing:
1st rack travel in: 11.20
Speed rpm : 925...935
2nd rack travel in: 4.00
Speed rpm : 1030...1060
4th rack travel in: 1150
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 9...17

Testing:
Speed rpm : 275
Minimum rack travel: 6.20
Speed rpm : 325
Rack travel in mm : 4.60...4.80

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 875
Rack travel in m: 12.20...12.30
2nd speed rpm : 510
Rack travel in m: 14.10...14.30
3rd speed rpm : 700
Rack travel in m: 13.20...13.40
4th speed rpm : 400
Rack travel in m: 0.00...13.80

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 510
Pressure hPa : 1200
Rack travel mm : 14.10...14.30

Measurement

Speed 1/min : 510

1st pressure hPa : -
Rack travel in m: 8.50...8.70
2nd pressure hPa : 330
Rack travel in m: 9.90...10.00
3rd pressure hPa : 685
Rack travel in m: 12.50...12.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 510
Del. quantity cm³/ : 260.0...266.0
1000 s: (257.0...269.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 400
Del. quantity cm³/ : 131.0...135.0
1000 s: (129.0...137.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20
Speed rpm : 925...935

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...180.0
1000 s: (130.0...190.0)
Rack travel in mm : 8.50...8.70

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.60...4.80
Del. quantity cm³/ : 37.0...43.0
1000 s: (35.0...45.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,1 a6
 Edition : 07.01.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 746 819
 Injection pump
 Pump designation : PES6P120A72ORS7135
 EP type number : 0 412 726 807
 Governor
 Governor design. : RGV325...875PA848-6K
 Governor no. : 0 421 815 175

Customer-spec. information
 Customer : MACK

Engine : EM6-225L 4VH

1st version kW : 165.0
 Rated speed : 1750

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 011

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 10.50...10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 875

Rack travel in mm : 11.00...11.10

Del. quantity cm3/ : 15.6...15.8

100 s: (15.3...16.1)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.6...4.8

Del. quantity cm3/ : 3.8...4.4

100 s: (3.6...4.6)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 1.20...1.40

2nd speed rpm : 450

travel mm : 2.80...3.10

3rd speed rpm : 850

travel mm : 6.20...6.40

4th speed rpm : 1000

travel mm : 7.70...7.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1110

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 875

Aneroid pressure h: 900

Del. quantity : 156.0...158.0

1000 : (153.0...161.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 52...60

Testing:
1st rack travel in: 10.00
Speed rpm : 925...935
2nd rack travel in: 4.00
Speed rpm : 1015...1045
4th rack travel in: 1150
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 9...17

Testing:
Speed rpm : 275
Minimum rack travel: 6.10
Speed rpm : 325
Rack travel in mm : 4.60...4.80

CONSTANT REGULATION
Speed rpm : 325...520

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 875
Rack travel in m: 11.00...11.10
2nd speed rpm : 510
Rack travel in m: 13.20...13.40
3rd speed rpm : 600
Rack travel in m: 12.50...12.70
4th speed rpm : 700
Rack travel in m: 11.80...12.00
5th speed rpm : 350
Rack travel in m: 0.00...13.20

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 510
Pressure hPa : 900
Rack travel mm : 13.20...13.40

Measurement
Speed 1/min : 510

1st pressure hPa : -
Rack travel in m: 8.50...8.90
2nd pressure hPa : 220
Rack travel in m: 9.70...9.80

E27

3rd pressure hPa : 500
Rack travel in m: 12.00...12.40

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 510
Del. quantity cm³/ : 232.0...238.0
1000 s: (229.0...241.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 400
Del. quantity cm³/ : 131.0...135.0
1000 s: (129.0...137.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.00
Speed rpm : 925...935

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...175.0
1000 s: (125.0...185.0)
Rack travel in mm : 8.50...8.90

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.60...4.80
Del. quantity cm³/ : 38.0...44.0
1000 s: (36.0...46.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,1 b5
 Edition : 15.04.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 746 820
 Injection pump
 Pump designation : PES6P120A72ORS7135
 EP type number : 0 412 726 807
 Governor
 Governor design. : RQV325...850PA878K
 Governor no. : 0 421 815 177

Customer-spec. information
 Customer : MACK

Engine : E6-275 4VH

1st version kW : 202.0
 Rated speed : 1700

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 011

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 10.30...10.70
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 12.00...12.10

Del. quantity cm³/ : 17.9...18.1

100 s: (17.6...18.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.5...4.7

Del. quantity cm³/ : 3.2...3.8

100 s: (3.0...4.0)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 1.20...1.40

2nd speed rpm : 450

travel mm : 2.80...3.10

3rd speed rpm : 850

travel mm : 6.20...6.40

4th speed rpm : 1000

travel mm : 7.70...7.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1110

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 900

Del. quantity : 179.0...181.0

1000 : (176.0...184.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 52...60

Testing:
1st rack travel in: 11.00
Speed rpm : 900...910
2nd rack travel in: 4.00
Speed rpm : 1025...1055
4th rack travel in: 1150
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 7...15

Testing:
Speed rpm : 275
Minimum rack travel: 6.00
Speed rpm : 325
Rack travel in mm : 4.50...4.70

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 850
Rack travel in m: 12.00...12.10
2nd speed rpm : 600
Rack travel in m: 12.60...12.70
3rd speed rpm : 700
Rack travel in m: 12.50...12.70
4th speed rpm : 500
Rack travel in m: 0.00...12.40

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 900
Rack travel mm : 12.60...12.70

Measurement
Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 9.50...9.90
2nd pressure hPa : 215
Rack travel in m: 10.30...10.40
3rd pressure hPa : 360
Rack travel in m: 11.50...11.90

F01

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 600
Del.quantity cm³/ : 209.0...215.0
1000 s: (206.0...218.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 400
Del.quantity cm³/ : 144.0...148.0
1000 s: (142.0...150.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.00
Speed rpm : 900...910

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 160.0...200.0
1000 s: (150.0...210.0)
Rack travel in mm : 9.50...9.90

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.50...4.70
Del.quantity cm³/ : 32.0...38.0
1000 s: (30.0...40.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,1 b
 Edition : 08.04.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 746 821
 Injection pump
 Pump designation : PES6P120A72ORS7135
 EP type number : 0 412 726 807
 Governor
 Governor design. : RQV325...850PA878-1K
 Governor no. : 0 421 815 178

Customer-spec. information
 Customer : MACK

Engine : E6-300 4VH

1st version kW : 224.0
 Rated speed : 1700

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 011

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 10.30...10.70
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 12.90...13.00

Del.quantity cm3/ : 20.0...20.2

100 s: (19.7...20.5)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.5...4.7

Del.quantity cm3/ : 3.2...3.8
 100 s: (3.0...4.0)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 1.20...1.40

2nd speed rpm : 450

travel mm : 2.80...3.10

3rd speed rpm : 850

travel mm : 6.20...6.40

4th speed rpm : 1000

travel mm : 7.70...7.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1100

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 900

Del.quantity : 200.5...202.5

1000 : (197.5...205.5)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 52...60

Testing:
1st rack travel in: 11.90
Speed rpm : 900...910
2nd rack travel in: 4.00
Speed rpm : 1025...1055
4th rack travel in: 1100
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 7...15

Testing:
Speed rpm : 275
Minimum rack travel: 6.00
Speed rpm : 325
Rack travel in mm : 4.50...4.70

CONSTANT REGULATION
Speed rpm : 325...520

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 850
Rack travel in m: 12.90...13.00
2nd speed rpm : 700
Rack travel in m: 13.30...13.50
3rd speed rpm : 600
Rack travel in m: 13.50...13.70
4th speed rpm : 500
Rack travel in m: 0.00...13.10

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 900
Rack travel mm : 13.50...13.70

Measurement
Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 9.40...9.80
2nd pressure hPa : 280
Rack travel in m: 10.40...10.50
3rd pressure hPa : 510
Rack travel in m: 12.20...12.50

F03

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 700
Del.quantity cm³/ : 217.0...225.0
1000 s: (214.0...225.0)
Aneroid pressure h: 900
Speed rpm : 600
Del.quantity cm³/ : 233.0...239.0
1000 s: (230.0...242.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 400
Del.quantity cm³/ : 147.0...151.0
1000 s: (145.0...153.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.90
Speed rpm : 900...910

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 170.0...210.0
1000 s: (160.0...220.0)
Rack travel in mm : 9.40...9.80

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.50...4.70
Del.quantity cm³/ : 32.0...38.0
1000 s: (30.0...40.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,1 b1
 Edition : 08.04.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 746 822
 Injection pump
 Pump designation : PES6P120A72ORS7135
 EP type number : 0 412 726 807
 Governor
 Governor design. : RQV325...900PA878-2K
 Governor no. : 0 421 815 179

Customer-spec. information
 Customer : MACK

Engine : E6-350 4VH

1st version kW : 261.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 011

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 10.50...10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 13.90...14.00

Del. quantity cm³/ : 23.3...23.5

100 s: (23.0...23.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.0...4.2

Del. quantity cm³/ : 3.2...3.8

100 s: (3.0...4.0)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 1.20...1.40

2nd speed rpm : 450

travel mm : 3.10...3.30

3rd speed rpm : 850

travel mm : 5.90...6.10

4th speed rpm : 1000

travel mm : 7.50...7.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1130

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 900

Del. quantity : 233.0...235.0

1000 : (230.0...238.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 55...63

Testing:
1st rack travel in: 12.90
Speed rpm : 950...960
2nd rack travel in: 4.00
Speed rpm : 1075...1105
4th rack travel in: 1150
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 7...15

Testing:
Speed rpm : 275
Minimum rack travel: 5.50
Speed rpm : 325
Rack travel in mm : 4.00...4.20

CONSTANT REGULATION
Speed rpm : 325...520

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 13.90...14.00
2nd speed rpm : 625
Rack travel in m: 14.10...14.20
3rd speed rpm : 800
Rack travel in m: 14.00...14.10
4th speed rpm : 500
Rack travel in m: 0.00...13.50

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 625
Pressure hPa : 900
Rack travel mm : 14.10...14.20

Measurement
Speed 1/min : 625

1st pressure hPa : -
Rack travel in m: 8.30...8.70
2nd pressure hPa : 275
Rack travel in m: 10.00...10.10
3rd pressure hPa : 570
Rack travel in m: 12.30...12.70

F05

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 625
Del.quantity cm³/ : 254.0...260.0
1000 s: (251.0...263.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 400
Del.quantity cm³/ : 136.0...140.0
1000 s: (134.0...142.0)

BREAKAWAY

1st version
1mm rack travel less than
Full load rack tr: 12.90
Speed rpm : 950...960

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...180.0
1000 s: (130.0...190.0)
Rack travel in mm : 8.30...8.70

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.00...4.20
Del.quantity cm³/ : 32.0...38.0
1000 s: (30.0...40.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,1 b2
 Edition : 02.11.87
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 746 823
 Injection pump
 Pump designation : PES6P120A72ORS7135
 EP type number : 0 412 726 807
 Governor
 Governor design. : RQV325...87SPA878-3K
 Governor no. : 0 421 815 180

Customer-spec. information
 Customer : MACK

Engine : EM6-275L 4VH

1st version kW : 202.0
 Rated speed : 1750

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 011

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _ _ _

BEGINNING OF DELIVERY

Test pressure, bar : 17...19

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 10.50...10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 875

Rack travel in mm : 12.20...12.30

Del. quantity cm³/ : 18.7...18.9

100 s : (18.4...19.2)

Spread cm³ : 0.5

100 s : (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.6...4.8

Del. quantity cm³/ : 3.7...4.3

100 s : (3.5...4.5)

Spread cm³ : 0.8

100 s : (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 1.30...1.50

2nd speed rpm : 450

travel mm : 2.60...2.90

3rd speed rpm : 600

travel mm : 3.80...4.00

4th speed rpm : 850

travel mm : 6.50...6.70

5th speed rpm : 1000

travel mm : 8.70...8.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: 65

Speed rpm : 1030

Rack travel in mm : 8.00...10.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 875

Aneroid pressure h: 1200

Del. quantity : 187.0...189.0
1000 : (184.0...192.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 54...62

Testing:
1st rack travel in: 11.20
Speed rpm : 915...925
2nd rack travel in: 4.00
Speed rpm : 985...1015
4th rack travel in: 1100
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 9...17

Testing:
Speed rpm : 275
Minimum rack travel: 6.20
Speed rpm : 325
Rack travel in mm : 4.60...4.80

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 875
Rack travel in m: 12.20...12.30
2nd speed rpm : 510
Rack travel in m: 14.20...14.30
3rd speed rpm : 700
Rack travel in m: 13.20...13.30
4th speed rpm : 550
Rack travel in m: 0.00...14.30

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 510
Pressure hPa : 1200
Rack travel mm : 14.20...14.30

Measurement

Speed 1/min : 510

1st pressure hPa : -
Rack travel in m: 8.80...9.00
2nd pressure hPa : 330
Rack travel in m: 10.20...10.30

F07

3rd pressure hPa : 685
Rack travel in m: 12.80...13.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 510
Del. quantity cm3/ : 260.0...266.0
1000 s: (257.0...269.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 400
Del. quantity cm3/ : 131.0...135.0
1000 s: (129.0...137.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.20
Speed rpm : 915...925

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 140.0...180.0
1000 s: (130.0...190.0)
Rack travel in mm : 8.80...9.00

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.60...4.80
Del. quantity cm3/ : 37.0...43.0
1000 s: (35.0...45.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,1 b3
 Edition : 07.01.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 746 824
 Injection pump
 Pump designation : PES6P120A720RS7135
 EP type number : 0 412 726 807
 Governor
 Governor design. : RQV325...87SPA878-4K
 Governor no. : 0 421 815 181

Customer-spec. information
 Customer : MACK

Engine : EM6-225L 4VH

1st version kW : 165.0
 Rated speed : 1750

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 011

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 10.50...10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 875

Rack travel in mm : 11.00...11.10

Del. quantity cm³/ : 15.6...15.8

100 s: (15.3...16.1)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.6...4.8

Del. quantity cm³/ : 3.8...4.4

100 s: (3.6...4.6)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 1.20...1.40

2nd speed rpm : 450

travel mm : 2.80...3.10

3rd speed rpm : 850

travel mm : 6.20...6.40

4th speed rpm : 1000

travel mm : 7.70...7.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1110

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 875

Aneroid pressure h: 900

Del. quantity : 156.0...158.0

1000 : (153.0...161.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 52...60

Testing:

1st rack travel in: 10.00
Speed rpm : 925...935
2nd rack travel in: 4.00
Speed rpm : 1015...1045
4th rack travel in: 1150
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 9...17

Testing:

Speed rpm : 275
Minimum rack travel: 6.10
Speed rpm : 325
Rack travel in mm : 4.60...4.80

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 875
Rack travel in m: 11.00...11.10
2nd speed rpm : 510
Rack travel in m: 13.20...13.40
3rd speed rpm : 600
Rack travel in m: 12.50...12.70
4th speed rpm : 700
Rack travel in m: 11.80...12.00
5th speed rpm : 350
Rack travel in m: 0.00...13.20

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 510
Pressure hPa : 900
Rack travel mm : 13.20...13.40

Measurement

Speed 1/min : 510

1st pressure hPa : -
Rack travel in m: 8.50...8.90
2nd pressure hPa : 220
Rack travel in m: 9.70...9.80

3rd pressure hPa : 500
Rack travel in m: 12.00...12.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 510
Del. quantity cm³/ : 232.0...238.0
1000 s: (229.0...241.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 400
Del. quantity cm³/ : 131.0...135.0
1000 s: (129.0...137.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.00
Speed rpm : 925...935

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...175.0
1000 s: (125.0...185.0)
Rack travel in mm : 8.50...8.90

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.60...4.80
Del. quantity cm³/ : 38.0...44.0
1000 s: (36.0...46.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

Delivery-valve spring pre-tension
3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,1 b4
 Edition : 07.01.88
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 746 826

Injection pump
 Pump designation : PES6P120A72ORS7135
 EP type number : 0 412 726 807
 Governor
 Governor design. : RQV325...875PA878-6K
 Governor no. : 0 421 815 183

Customer-spec. information
 Customer : MACK

Engine : EM6-250L 4VH

1st version kW : 186.0
 Rated speed : 1750

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 011

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 10.50...10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 875

Rack travel in mm : 10.80...10.90

Del. quantity cm³/ : 16.0...16.2

100 s: (15.7...16.5)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.5...4.7

Del. quantity cm³/ : 3.9...4.5

100 s: (3.7...4.7)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 1.20...1.40

2nd speed rpm : 450

travel mm : 2.80...3.10

3rd speed rpm : 850

travel mm : 6.20...6.40

4th speed rpm : 1000

travel mm : 7.70...7.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1100

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 875

Aneroid pressure h: 1200

Del. quantity : 160.0...162.0

1000 : (157.0...165.0)

Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 52...60

Testing:
1st rack travel in: 9.80
Speed rpm : 925...935
2nd rack travel in: 4.00
Speed rpm : 1010...1040
4th rack travel in: 1100
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 9...17

Testing:
Speed rpm : 275
Minimum rack travel: 1.50
Speed rpm : 325
Rack travel in mm : 4.50...4.70

CONSTANT REGULATION
Speed rpm : 325...520

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 875
Rack travel in m: 10.80...10.90
2nd speed rpm : 510
Rack travel in m: 13.00...13.20
3rd speed rpm : 600
Rack travel in m: 12.40...12.60
4th speed rpm : 700
Rack travel in m: 11.70...11.90
5th speed rpm : 550
Rack travel in m: 0.00...13.10

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 510
Pressure hPa : 1200
Rack travel mm : 13.00...13.20

Measurement
Speed 1/min : 510

1st pressure hPa : -
Rack travel in m: 9.20...9.40
2nd pressure hPa : 215
Rack travel in m: 10.30...10.40

3rd pressure hPa : 435
Rack travel in m: 12.20...12.60

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 510
Del. quantity cm3/ : 237.0...243.0
1000 s: (234.0...246.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 400
Del. quantity cm3/ : 146.0...150.0
1000 s: (144.0...152.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.80
Speed rpm : 925...935

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 165.0...205.0
1000 s: (155.0...215.0)
Rack travel in mm : 9.20...9.40

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.50...4.70
Del. quantity cm3/ : 39.0...45.0
1000 s: (37.0...47.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,1 a7
 Edition : 07.01.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 746 829
 Injection pump
 Pump designation : PES6P120A720RS7135
 EP type number : 0 412 726 807
 Governor
 Governor design. : RQV325..1050PA848-8K
 Governor no. : 0 421 815 185

Customer-spec. information
 Customer : MACK

Engine : E6-270 4VH

1st version kW : 201.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 2 417 413 011

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 10.50...10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

 Rack travel in mm : 12.20...12.30

 Del. quantity cm3/ : 17.4...17.6

 100 s: (17.1...17.9)

 Spread cm3 : 0.5

 100 s: (0.9)

 2nd speed rpm : 325.0
 Rack travel in mm : 4.8...5.0
 Del. quantity cm3/ : 3.8...4.4
 100 s: (3.6...4.6)
 Spread cm3 : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
 travel mm : 1.40...1.60
 2nd speed rpm : 450
 travel mm : 2.50...2.80
 3rd speed rpm : 800
 travel mm : 4.80...5.00
 4th speed rpm : 1050
 travel mm : 7.30...7.60
 5th speed rpm : 1200
 travel mm : 9.40...9.60

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1210
 Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050
 Aneroid pressure h: 900

Del. quantity : 174.0...176.0
1000 : (171.0...179.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 55...63

Testing:

1st rack travel in: 11.20
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 10...18

Testing:

Speed rpm : 275
Minimum rack travel: 1.50
Speed rpm : 325
Rack travel in mm : 4.80...5.00

CONSTANT REGULATION

Speed rpm : 325...600

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050
Rack travel in m: 12.20...12.30
2nd speed rpm : 630
Rack travel in m: 12.00...12.10
3rd speed rpm : 925
Rack travel in m: 11.90...12.10
4th speed rpm : 800
Rack travel in m: 12.20...12.40

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 630
Pressure hPa : 900
Rack travel mm : 12.00...12.10

Measurement

Speed 1/min : 630

1st pressure hPa : -
Rack travel in m: 8.80...9.00
2nd pressure hPa : 270
Rack travel in m: 9.60...9.70

3rd pressure hPa : 400
Rack travel in m: 11.00...11.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 630
Del. quantity cm³/ : 188.0...194.0
1000 s: (185.0...197.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 400
Del. quantity cm³/ : 129.0...133.0
1000 s: (127.0...135.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...175.0
1000 s: (125.0...185.0)
Rack travel in mm : 8.80...9.00

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.80...5.00
Del. quantity cm³/ : 38.0...44.0
1000 s: (36.0...46.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

Delivery-valve spring pre-tension
3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,7 f 1
 Edition : 07.03.88
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 746 830

Injection pump
 Pump designation : PES6P120A72OLS7107
 EP type number : 0 412 726 801
 Governor
 Governor design. : RGV350..1100PA886
 Governor no. : 0 421 813 691

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM447ha

1st version kW : 206.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _ _ _

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1080

Rack travel in mm : 13.40...13.50

Del. quantity cm³/ : 19.7...19.9

100 s: (19.4...20.2)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.2...5.5

Del. quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 2.20...2.40

2nd speed rpm : 580

travel mm : 3.80...4.20

3rd speed rpm : 1150

travel mm : 8.00...8.50

4th speed rpm : 1230

travel mm : 9.20...9.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1160

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1080

Aneroid pressure h: 750
Del. quantity : 197.0...199.0
1000 : (194.0...202.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 60...68

Testing:

1st rack travel in: 12.40
Speed rpm : 1120...1130
2nd rack travel in: 4.00
Speed rpm : 1215...1245
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 11...19

Testing:

Speed rpm : 250
Minimum rack travel: 7.50
Speed rpm : 350
Rack travel in mm : 5.20...5.50

CONSTANT REGULATION

Speed rpm : 350...550

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.70...11.00

Measurement

Speed 1/min : 500

1st pressure hPa : 230
Rack travel in m: 11.00...11.20
2nd pressure hPa : 370
Rack travel in m: 12.40...12.60

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 750

F15

Speed rpm : 600
Del. quantity cm3/ : 196.0...200.0
1000 s: (193.0...203.0)
Spread cm3 : 8.00
1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500
Del. quantity cm3/ : 144.0...146.0
1000 s: (141.0...149.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.40
Speed rpm : 1120...1130

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 150.0...170.0
1000 s: (146.0...174.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,1 a8
 Edition : 06.04.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 746 832
 Injection pump
 Pump designation : PES6P120A72ORS7135
 EP type number : 0 412 726 807
 Governor
 Governor design. : RQV325...900PA848-10
 K
 Governor no. : 0 421 815 189

Customer-spec. information
 Customer : MACK

Engine : EM6 275 2VH

1st version kW : 202.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 011

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 10.30...10.70
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 12.30...12.40

Del. quantity cm³/ : 18.7...18.9

100 s: (18.4...19.2)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.6...4.8

Del. quantity cm³/ : 3.7...4.3

100 s: (3.5...4.5)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 1.20...1.40

2nd speed rpm : 450

travel mm : 3.10...3.30

3rd speed rpm : 850

travel mm : 5.90...6.10

4th speed rpm : 1000

travel mm : 7.50...7.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1120

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 900

Del. quantity : 187.0...189.0
1000 : (184.0...192.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 51...59

Testing:
1st rack travel in: 11.30
Speed rpm : 950...960
2nd rack travel in: 4.00
Speed rpm : 1055...1085
4th rack travel in: 1150
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 9...17

Testing:
Speed rpm : 275
Minimum rack travel: 6.10
Speed rpm : 325
Rack travel in mm : 4.60...4.80

CONSTANT REGULATION

Speed rpm : 325...480

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 900
Rack travel in m: 12.30...12.40
2nd speed rpm : 540
Rack travel in m: 13.50...13.70
3rd speed rpm : 700
Rack travel in m: 12.70...12.90
4th speed rpm : 450
Rack travel in m: 0.00...13.30

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 540
Pressure hPa : 900
Rack travel mm : 13.50...13.60

Measurement

Speed 1/min : 540

1st pressure hPa : -
Rack travel in m: 9.10...9.20
2nd pressure hPa : 320
Rack travel in m: 10.20...10.30

3rd pressure hPa : 550
Rack travel in m: 12.00...12.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 540
Del. quantity cm3/ : 235.0...241.0
1000 s: (232.0...244.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 400
Del. quantity cm3/ : 142.0...146.0
1000 s: (140.0...148.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.30
Speed rpm : 950...960

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 150.0...190.0
1000 s: (140.0...200.0)
Rack travel in mm : 9.10...9.30

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.60...4.80
Del. quantity cm3/ : 37.0...43.0
1000 s: (35.0...45.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,1 a9
Edition : 07.03.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 746 833

Injection pump
Pump designation : PES6P120A720RS7135
EP type number : 0 412 726 807
Governor
Governor design. : RQV325...975PA848-11
K
Governor no. : 0 421 815 190

Customer-spec. information
Customer : MACK

Engine : E6-350 2VH

1st version kW : 257.0
Rated speed : 1950

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 011

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85
(2.70...2.90)
Rack travel in mm : 10.30...10.70
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 975

Rack travel in mm : 14.10...14.20

Del. quantity cm3/ : 23.4...23.6

100 s: (23.1...23.9)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.5...4.7

Del. quantity cm3/ : 3.8...4.4

100 s: (3.6...4.6)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 1.40...1.60

2nd speed rpm : 450

travel mm : 2.50...2.80

3rd speed rpm : 800

travel mm : 4.80...5.00

4th speed rpm : 1050

travel mm : 7.30...7.60

5th speed rpm : 1200

travel mm : 9.40...9.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1190

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 975

Aneroid pressure h: 900
Del.quantity : 234.0...236.0
1000 : (231.0...239.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 55...63

Testing:

1st rack travel in: 13.10
Speed rpm : 1015...1025
2nd rack travel in: 4.00
Speed rpm : 1130...1160
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 10...18

Testing:

Speed rpm : 275
Minimum rack travel: 6.00
Speed rpm : 325
Rack travel in mm : 4.50...4.70

CONSTANT REGULATION

Speed rpm : 325...600

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 975
Rack travel in m: 14.10...14.20
2nd speed rpm : 700
Rack travel in m: 13.80...13.90
3rd speed rpm : 600
Rack travel in m: 0.00...13.30

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 700
Pressure hPa : 900
Rack travel mm : 13.80...13.90

Measurement

Speed 1/min : 700

1st pressure hPa : -
Rack travel in m: 7.80...8.00
2nd pressure hPa : 240
Rack travel in m: 9.30...9.40
3rd pressure hPa : 510

Rack travel in m: 12.20...12.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 700
Del.quantity cm³/ : 230.0...236.0
1000 s: (227.0...239.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 400
Del.quantity cm³/ : 125.0...129.0
1000 s: (123.0...131.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.10
Speed rpm : 1015...1025

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 110.0...150.0
1000 s: (100.0...160.0)
Rack travel in mm : 7.80...8.00

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.50...4.70
Del.quantity cm³/ : 38.0...44.0
1000 s: (36.0...46.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

Delivery-valve spring pre-tension
3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 12,0 a 2
Edition : 15.08.89
Replaces : 29.3.89
Test oil : ISO-4113

Combination no. : 0 402 746 841

Injection pump
Pump designation : PES6P120A720LS7114-2
EP type number : 0 412 726 815
Governor
Governor design. : RQ300/1050PA774-3
Governor no. : 0 421 801 451

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM447 LA

1st version kW : 265.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press. bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (5.15...5.35)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.00...14.20

Del. quantity cm³/ : 22.9...23.1

100 s: (22.6...23.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.8...6.2

Del. quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 900

Del. quantity : 229.0...231.0

1000 : (226.0...234.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.20
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1165...1195
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0
Speed rpm : 300
Rack travel in mm : 5.80...6.20
Rack travel in mm : 2.00
Speed rpm : 360...400

TORQUE CONTROL

Dimension a mm : ?
2nd speed rpm : 1050
Rack travel in m: 14.20...14.40
3rd speed rpm : 700
Rack travel in m: 14.70...14.90

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 14.00...14.20

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 11.80...12.00
2nd pressure hPa : 500
Rack travel in m: 13.40...13.60
3rd pressure hPa : 1100
Rack travel in m: 14.20...14.40
4th pressure hPa : 1200
Rack travel in m: 14.50...14.70
5th pressure hPa : -
Rack travel in m: 10.40...10.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 1050

Del.quantity cm3/ : 234.0...238.0
1000 s: (231.0...341.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1500
Speed rpm : 700
Del.quantity cm3/ : 246.0...249.0
1000 s: (243.0...252.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 146.0...148.0
1000 s: (143.0...151.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.20
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 240.0...260.0
1000 s: (236.0...264.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 12,0 a 3
Edition : 25.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 746 854

Injection pump
Pump designation : PES6P120A720LS7114-3
EP type number : 0 412 726 820
Governor
Governor design. : RQ300/1050PA911
Governor no. : 0 421 801 476

Customer-spec. information
Customer : DBAIMLER-BENZ

Engine : OM447 LA

1st version kW : 257.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (5.15...5.35)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.60...13.80

Del. quantity cm³/ : 22.9...23.1

100 s: (22.6...23.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.8...6.2

Del. quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 800

Del. quantity : 229.0...231.0

1000 : (226.0...234.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.70
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0
Speed rpm : 300
Rack travel in mm : 5.80...6.20
Rack travel in mm : 2.00
Speed rpm : 360...400

TORQUE CONTROL

Dimension a mm : ?
2nd speed rpm : 1050
Rack travel in m: 13.60...13.80
3rd speed rpm : 700
Rack travel in m: 14.10...14.30

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 800
Rack travel mm : 13.60...13.80

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 11.20...11.40
2nd pressure hPa : 600
Rack travel in m: 13.10...13.30
3rd pressure hPa : 1000
Rack travel in m: 13.70...13.80
4th pressure hPa : 1100
Rack travel in m: 13.90...14.10
5th pressure hPa : -
Rack travel in m: 10.20...10.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 1050

Del.quantity cm3/ : 229.0...233.0
1000 s: (226.0...236.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1500
Speed rpm : 800
Del.quantity cm3/ : 244.0...247.0
1000 s: (241.0...250.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 146.0...148.0
1000 s: (143.0...151.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.70
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 240.0...260.0
1000 s: (236.0...264.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 12,0 e
Edition : 15.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 746 855

Injection pump
Pump designation : PES6P120A72OLS7176
EP type number : 0 412 726 821
Governor
Governor design. : RQ300/1050PA897
Governor no. : 0 421 801 452

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM447 A

1st version kW : 213.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (5.15...5.35)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.10...14.30

Del.quantity cm3/ : 20.1...20.3

100 s: (19.8...20.6)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.8...6.2

Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.6

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 650

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 680

Del.quantity : 201.0...203.0

1000 : (198.0...206.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 650

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.60
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1250
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.9

Testing:

Speed rpm : 200
Minimum rack trave: 7.50
Speed rpm : 300
Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.00
Speed rpm : 380...420

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 680
Rack travel mm : 14.10...14.30

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 12.30...12.50
2nd pressure hPa : 400
Rack travel in m: 13.20...13.40
3rd pressure hPa : 800
Rack travel in m: 14.20...14.30
4th pressure hPa : -
Rack travel in m: 11.50...11.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1050
Del.quantity cm3/ : 193.0...195.0
1000 s: (190.0...198.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1200
Speed rpm : 750

F25

Del.quantity cm3/ : 218.0...222.0
1000 s: (215.0...225.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 144.0...146.0
1000 s: (141.0...149.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.60
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 150.0...170.0
1000 s: (146.0...174.0)

Remarks:

:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SSC 10,5 f
Edition : 16.06.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 746 856

Injection pump
Pump designation : PES6P130A320LS7173
EP type number : 0 412 736 802
Governor
Governor design. : RQV300...750PA914
Governor no. : 0 421 813 747

Customer-spec. information
Customer : SSCM

Engine : UD25-L6

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 443 022

Opening
pressure, bar : 172...175

Test lines : 1 680 750 060

Outside diameter
x Wall thickness
x Length mm : 8.00X2.00X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 12.30...12.40

Del. quantity cm3/ : 48.0...48.3

100 s: (47.6...48.6)

Spread cm3 : 0.6

100 s: (1.0)

2nd speed rpm : 300.0

Rack travel in mm : 4.7...5.3

Del. quantity cm3/ : 4.7...5.3

100 s: (4.3...5.7)

Spread cm3 : 1.0

100 s: (1.4)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.10...1.30

2nd speed rpm : 600

travel mm : 5.10...5.70

3rd speed rpm : 750

travel mm : 7.70...7.90

4th speed rpm : 1000

travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del. quantity : 480.0...483.0

1000 : (476.5...486.5)

Spread cm3 : 6.00

1000 : (10.00)

RATED SPEED

1st version

Control lever

position degrees: 100...108

Testing:

1st rack travel in: 11.30

Speed rpm : 790...800

2nd rack travel in: 4.00

Speed rpm : 840...870

LOW IDLE 1

Control lever

position degrees: 43...51

Speed rpm : 300

Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

Speed rpm : 315...445

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.30

Speed rpm : 790...800

INTERMEDIATE RATED SPEED

Rack travel in mm : 4.00

STARTING FUEL DELIVERY

Speed rpm : 100

Remarks:

:

APPLICATION

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FIA 9,5 a 1
 Edition : 28.06.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 746 857
 Injection pump
 Pump designation : PES6P120A72ORS7177
 EP type number : 0 412 726 823
 Governor
 Governor design. : RQ275/1100PA915
 Governor no. : 0 421 801 478

Customer-spec. information
 Customer : IVECO-FIAT

Engine : 8460.41.601

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 9.00...12.00

F28

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 12.30...12.40
 Del. quantity cm³/ : 18.8...19.0
 100 s: (18.5...19.3)
 Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 275.0
 Rack travel in mm : 5.7...5.9
 Del. quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Aneroid pressure h: 900
 Del. quantity : 188.0...190.0
 1000 : (185.0...193.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 600
 Rack travel in mm : 20.0

Testing:
 1st rack travel in: 11.30
 Speed rpm : 1145...1160
 2nd rack travel in: 4.00
 Speed rpm : 1230...1260

4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 5.8

Testing:

Speed rpm : 100
Minimum rack trave: 7.30
Speed rpm : 275
Rack travel in mm : 5.70...5.90

CONSTANT REGULATION

Speed rpm : 330...370

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.60...12.70
2nd speed rpm : 600
Rack travel in m: 12.60...12.80

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.30...12.40

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.70...9.80
2nd pressure hPa : 320
Rack travel in m: 11.30...11.40
3rd pressure hPa : 270
Rack travel in m: 10.40...10.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm3/ : 123.0...125.0
1000 s: (120.0...128.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.30
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100

Remarks:

:

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 12,0 f
Edition : 18.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 746 858

Injection pump
Pump designation : PES6P120A72OLS7181
EP type number : 0 412 726 824
Governor
Governor design. : RQ300/1050PA911-1
Governor no. : 0 421 801 481

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM447 LA

1st version kW : 294.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Lube oil : a

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600
Rack travel in mm : 15.20...15.40

Del. quantity cm³/ : 27.4...27.6
100 s: (27.1...27.9)

Spread cm³ : 0.5
100 s: (0.9)

2nd speed rpm : 300.0
Rack travel in mm : 5.8...6.2
Del. quantity cm³/ : 1.4...2.0
100 s: (1.1...2.3)
Spread cm³ : 0.8
100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -2
Speed rpm : 600
Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 600
Aneroid pressure h: 1000
Del. quantity : 274.0...276.0
1000 : (271.0...279.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.90
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300
Rack travel in mm : 6.0
Speed rpm : 300
Rack travel in mm : 5.80...6.20
Rack travel in mm : 2.00
Speed rpm : 360...400

TORQUE CONTROL

Dimension a mm : 0.50
2nd speed rpm : 1050
Rack travel in m: 14.90...15.10
3rd speed rpm : 850
Rack travel in m: 15.60...15.80

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 15.20...15.40

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 10.90...11.10
2nd pressure hPa : 700
Rack travel in m: 14.00...14.20
3rd pressure hPa : 1300
Rack travel in m: 15.40...15.60
4th pressure hPa : 1450
Rack travel in m: 15.90...16.10
5th pressure hPa : -
Rack travel in m: 10.00...10.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1600
Speed rpm : 1050
Del. quantity cm3/ : 269.0...272.0
1000 s: (266.0...275.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1600
Speed rpm : 700
Del. quantity cm3/ : 298.0...301.0
1000 s: (295.0...304.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm3/ : 143.0...145.0
1000 s: (140.0...148.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.90
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 250.0...270.0
1000 s: (246.0...274.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 12,0 a 4
Edition : 16.06.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 746 859

Injection pump
Pump designation : PES6P120A720LS7114-2
EP type number : 0 412 726 815
Governor
Governor design. : RQV300..1050PA797-10
Governor no. : 0 421 813 758

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM447 LA

1st version kW : 265.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (5.15...5.35)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.00...14.20

Del. quantity cm³/ : 22.9...23.1

100 s: (22.6...23.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.8...6.2

Del. quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.10...1.30

2nd speed rpm : 600
travel mm : 4.90...5.10

3rd speed rpm : 800
travel mm : 5.90...6.20

4th speed rpm : 1100
travel mm : 8.10...8.50

5th speed rpm : 1175
travel mm : 9.70...10.20

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1

Speed rpm : 1080

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600
Aneroid pressure h: 900
Del. quantity : 229.0...231.0
1000 : (226.0...234.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 53...61

Testing:

1st rack travel in: 13.20
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 16...24

Testing:

Speed rpm : 200
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 5.80...6.20

CONSTANT REGULATION

Speed rpm : 300...450

TORQUE CONTROL

Dimension a mm : 0.50
2nd speed rpm : 1050
Rack travel in m: 14.20...14.40
3rd speed rpm : 700
Rack travel in m: 14.70...14.90

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 14.00...14.20

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 11.80...12.00
2nd pressure hPa : 500
Rack travel in m: 13.40...13.60
3rd pressure hPa : 1100

G05

Rack travel in m: 14.20...14.40
4th pressure hPa : 1200
Rack travel in m: 14.50...14.70
5th pressure hPa : -
Rack travel in m: 10.40...10.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 1050
Del. quantity cm³/ : 234.0...238.0
1000 s: (231.0...341.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1500
Speed rpm : 700
Del. quantity cm³/ : 246.0...249.0
1000 s: (243.0...252.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 146.0...148.0
1000 s: (143.0...151.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.20
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 240.0...260.0
1000 s: (236.0...264.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 12,0 d 2
 Edition : 16.06.89
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 746 860

Injection pump
 Pump designation : PES6P120A720LS7161
 EP type number : 0 412 726 817
 Governor
 Governor design. : RQV300..1050PA797-11
 Governor no. : 0 421 813 759

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM447 A

1st version kW : 213.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.10...14.30

Del. quantity cm3/ : 20.1...20.3

100 s: (19.8...20.6)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.8...6.2

Del. quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.6

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.10...1.30

2nd speed rpm : 600
 travel mm : 4.90...5.10

3rd speed rpm : 800
 travel mm : 5.90...6.20

4th speed rpm : 1100
 travel mm : 8.10...8.50

5th speed rpm : 1175
 travel mm : 9.70...10.20

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1080

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 600
Aneroid pressure h: 680
Del. quantity : 201.0...203.0
1000 : (198.0...206.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 53...61

Testing:
1st rack travel in: 12.60
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 16...24

Testing:
Speed rpm : 200
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 5.80...6.00

CONSTANT REGULATION
Speed rpm : 300...450

TORQUE CONTROL
Dimension a mm : 1.20
2nd speed rpm : 1050
Rack travel in m: 13.60...13.80
3rd speed rpm : 750
Rack travel in m: 14.80...15.00

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 680
Rack travel mm : 14.10...14.30

Measurement
Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 12.30...12.50
2nd pressure hPa : 400
Rack travel in m: 13.20...13.40
3rd pressure hPa : 800

Rack travel in m: 14.20...14.30 *
4th pressure hPa : -
Rack travel in m: 11.50...11.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 1050
Del. quantity cm3/ : 193.0...195.0
1000 s: (190.0...198.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1200
Speed rpm : 750
Del. quantity cm3/ : 218.0...222.0
1000 s: (215.0...225.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm3/ : 144.0...146.0
1000 s: (141.0...149.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack travel: 12.60
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 150.0...170.0
1000 s: (146.0...174.0)

Remarks:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 16,0 a
Edition : 01.09.89
Replaces : 17.2.89
Test oil : ISO-4113

Combination no. : 0 402 748 802

Injection pump
Pump designation : PES8P120A920/4LS7159
EP type number : 0 412 728 801
Governor
Governor design. : RQV325..1050PA848-21
K
Governor no. : 0 421 815 201

Customer-spec. information
Customer : MACK

Engine : EE9 502

1st version kW : 368.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 011

Overflow
quantity min. 1/h: 160...170

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

G08

Test pressure, bar: 22...24

Prestroke mm : 3.55...3.65
: (3.50...3.70)
Rack travel in mm : 9.00...12.00
Firing order : 1- 2- 7- 8- 4- 5- 6-
3

Phasing : 0-45-90-135-180-225-
270-315
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 630
Rack travel in mm : 11.90...12.00
Del. quantity cm³/ : 20.7...20.9
100 s: (20.4...21.2)
Spread cm³ : 0.5
100 s: (0.9)

2nd speed rpm : 325.0
Rack travel in mm : 4.8...5.0
Del. quantity cm³/ : 4.0...4.6
100 s: (3.8...4.8)
Spread cm³ : 0.8
100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
travel mm : 1.30...1.60
2nd speed rpm : 450
travel mm : 2.30...2.70
3rd speed rpm : 800
travel mm : 4.40...4.80
4th speed rpm : 1050
travel mm : 6.90...7.10
5th speed rpm : 1200
travel mm : 8.90...9.20

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1220
Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 630
Aneroid pressure h: 1200
Del.quantity : 207.0...209.0
1000 : (204.0...212.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 57...65

Testing:
1st rack travel in: 12.10
Speed rpm : 1095...1105
2nd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 9...17

Testing:
Speed rpm : 275
Minimum rack travel: 6.30
Speed rpm : 325
Rack travel in mm : 4.80...5.00

CONSTANT REGULATION
Speed rpm : 325...600

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 630
Rack travel in m: 11.90...12.00
2nd speed rpm : 1050
Rack travel in m: 13.10...13.30
3rd speed rpm : 500
Rack travel in m: 0.00...11.30

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1050
Pressure hPa : 1200
Rack travel mm : 13.10...13.20

Measurement
Speed 1/min : 1050

1st pressure hPa : -
Rack travel in m: 8.40...8.80
2nd pressure hPa : 345

Rack travel in m: 9.90...10.00
3rd pressure hPa : 725
Rack travel in m: 12.00...12.40

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 1050
Del.quantity cm3/ : 202.0...208.0
1000 s: (199.0...211.0)
Spread cm3 : 10.00
1000 s: (14.0)
Aneroid pressure h: -
Speed rpm : 400
Del.quantity cm3/ : 154.0...158.0
1000 s: (152.0...160.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.10
Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...180.0
1000 s: (130.0...190.0)
Rack travel in mm : 9.30...9.70

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.80...5.00
Del.quantity cm3/ : 40.0...46.0
1000 s: (38.0...48.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 12,0 c
Edition : 09.06.89
Replaces : 7.2.89
Test oil : ISO-4113

Combination no. : 0 402 776 805

Injection pump
Pump designation : PES6P120A720LS7155
EP type number : 0 412 726 812
Governor
Governor design. : RSV350..1050POA529-1
Governor no. : 0 421 833 295

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM447 LA

1st version kW : 265.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (5.15...5.35)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 13.40...13.50

Del. quantity cm³/ : 24.0...24.2

100 s: (23.7...24.5)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 4.5...4.8

Del. quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 1400

Del. quantity : 240.0...242.0

1000 : (237.0...245.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 50...58

Testing:

1st rack travel in: 12.40
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 24...32
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 4.6
Speed rpm : 350
Rack travel in mm : 4.50...4.80

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050
Rack travel in m: 13.40...13.50
2nd speed rpm : 825
Rack travel in m: 14.10...14.30
3rd speed rpm : 950
Rack travel in m: 13.60...13.80

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 600
Pressure hPa : 650
Rack travel mm : 13.00...13.20

Measurement

Speed 1/min : 600

1st pressure hPa : 350
Rack travel in m: 10.70...10.90
2nd pressure hPa : 400
Rack travel in m: 11.40...11.60
3rd pressure hPa : 850
Rack travel in m: 13.20...13.40
4th pressure hPa : 950
Rack travel in m: 13.70...13.90
5th pressure hPa : -
Rack travel in m: 9.80...10.10

FUEL DELIVERY CHARACTERISTICS

1st version

G11

Aneroid pressure h: 650
Speed rpm : 600
Del. quantity cm³/ : 234.0...237.0
1000 s: (231.0...240.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1400
Speed rpm : 825
Del. quantity cm³/ : 263.0...266.0
1000 s: (260.0...269.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 151.0...154.0
1000 s: (148.0...157.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.40
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 240.0...260.0
1000 s: (236.0...264.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 D 2
 Edition : 20.05.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 436 103
 Injection pump
 Pump designation : PES6MW100/120RS1143
 EP type number : 0 413 406 137
 Governor
 Governor design. : RQV350...1100MW82
 Governor no. : 0 420 083 130

Customer-spec. information
 Customer : CUMMINS/US

Engine : 6 CTA-830

1st version kW : 186.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0.6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.05...3.15
 : (3.00...3.20)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.70...12.80

Del. quantity cm³/ : 15.0...15.2

100 s: (14.8...15.4)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 7.2...7.3

Del. quantity cm³/ : 1.6...2.0

100 s: (1.4...2.2)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1240

travel mm : 8.80...9.20

2nd speed rpm : 1140

travel mm : 7.80...8.00

3rd speed rpm : 700

travel mm : 3.80...4.40

4th speed rpm : 350

travel mm : 1.20...1.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 900

Del. quantity : 150.0...152.0

1000 : (148.0...154.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 44...52

Testing:
1st rack travel in: 11.70
Speed rpm : 1150...1160
2nd rack travel in: 4.00
Speed rpm : 1240...1270
4th rack travel in: 1330
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 13...21
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 7.2

Testing:
Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 7.20...7.30

CONSTANT REGULATION
Speed rpm : 360...500

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.70...12.80
2nd speed rpm : 700
Rack travel in m: 13.40...13.50
3rd speed rpm : 900
Rack travel in m: 12.90...13.20

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 9.90...10.10

Measurement
Speed 1/min : 500

1st pressure hPa : 300
Rack travel in m: 10.80...10.90
2nd pressure hPa : 520
Rack travel in m: 12.20...12.50
3rd pressure hPa : 900
Rack travel in m: 13.60...13.70

START CUT-OUT

Speed 1/min : 270 (280)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 700
Del.quantity cm³/ : 159.0...161.0
1000 s: (157.0...163.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 88.0...90.0
1000 s: (86.0...92.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.70
Speed rpm : 1150...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 205.0...225.0
1000 s: (202.0...228.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 7.20...7.30
Del.quantity cm³/ : 16.0...20.0
1000 s: (14.0...22.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Start-of-delivery mark/lock = 8.0°
angular displacement of the cam after
start of delivery of cylinder 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 4,0 A 14
Edition : 19.05.88
Replaces : 25.08.87
Test oil : ISO-4113

Combination no. : 0 403 444 110

Injection pump
Pump designation : PES4MW100/72ORS1127
EP type number : 0 413 404 103
Governor
Governor design. : RQV300...1300MW48-1
Governor no. : 0 420 083 084

Customer-spec. information
Customer : DB

Engine : OM 364 A

1st version kW : 85.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 3.70...3.80
: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.10...11.20

Del. quantity cm³/ : 8.0...8.2

100 s : (7.8...8.4)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.8...7.9

Del. quantity cm³/ : 0.9...1.3

100 s : (0.7...1.5)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.50...9.90

2nd speed rpm : 1350

travel mm : 8.50...8.70

3rd speed rpm : 450

travel mm : 2.40...3.00

4th speed rpm : 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1330

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Del. quantity : 80.0...82.0

1000 : (78.0...84.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 50...58

Testing:

1st rack travel in: 10.10
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1430...1460
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.8

Testing:

Speed rpm : 100
Minimum rack travel: 9.50
Speed rpm : 300
Rack travel in mm : 7.80...7.90

CONSTANT REGULATION

Speed rpm : 330...600

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1300
Rack travel in m: 11.10...11.20
2nd speed rpm : 750
Rack travel in m: 11.90...12.10
3rd speed rpm : 585
Rack travel in m: 12.10...12.30
4th speed rpm : 1000
Rack travel in m: 11.10...11.30

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 76.0...78.0
1000 s: (74.0...80.0)
Spread cm³ : 5.00
1000 s: (7.0)
Speed rpm : 585
Del. quantity cm³/ : 71.5...74.5
1000 s: (69.0...77.0)

RACK STOP ADJUSTMENT

Speed rpm : 100

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 78.0...88.0
1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.80...7.90
Del. quantity cm³/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 4,0 A 19
Edition : 13.06.88
Replaces : 25.08.87
Test oil : ISO-4113

Combination no. : 0 403 444 112

Injection pump
Pump designation : PES4MW100/72ORS1127
EP type number : 0 413 404 103
Governor
Governor design. : RQV300...1300MW48-2
Governor no. : 0 420 083 110

Customer-spec. information
Customer : DB

Engine : OM 364 A

1st version kW : 85.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.10...11.20

Del. quantity cm³/ : 8.0...8.2

100 s: (7.8...8.4)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.8...7.9

Del. quantity cm³/ : 0.9...1.3

100 s: (0.7...1.5)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.50...9.90

2nd speed rpm : 1350

travel mm : 8.50...8.70

3rd speed rpm : 450

travel mm : 2.40...3.00

4th speed rpm : 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1330

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Del. quantity : 80.0...82.0

1000 : (78.0...84.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 50...58

Testing:

1st rack travel in: 10.10
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1430...1460
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.8

Testing:

Speed rpm : 100
Minimum rack travel: 9.50
Speed rpm : 300
Rack travel in mm : 7.80...7.90

CONSTANT REGULATION

Speed rpm : 330...600

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1300
Rack travel in m: 11.10...11.20
2nd speed rpm : 750
Rack travel in m: 11.80...12.10
3rd speed rpm : 585
Rack travel in m: 12.10...12.30
4th speed rpm : 1000
Rack travel in m: 11.10...11.30

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 76.0...78.0
1000 s: (74.0...80.0)
Spread cm³ : 5.00
1000 s: (7.0)
Speed rpm : 585
Del. quantity cm³/ : 71.5...74.5
1000 s: (69.0...77.0)

RACK STOP ADJUSTMENT

Speed rpm : 100

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 78.0...88.0
1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.80...7.90
Del. quantity cm³/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 4,0 A 25
Edition : 08.06.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 403 444 115

Injection pump
Pump designation : PES4MW100/72ORS1127
EP type number : 0 413 404 103
Governor
Governor design. : RQV300...1200MW48-6
Governor no. : 0 420 083 157

Customer-spec. information
Customer : DB

Engine : OM364A

1st version kW : 77.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
: (3.65...3.85)
Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 11.00...11.10

Del. quantity cm³/ : 7.5...7.7

100 s: (7.3...7.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 8.2...8.4

Del. quantity cm³/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1325

travel mm : 9.40...9.80

2nd speed rpm : 1250

travel mm : 8.60...8.80

3rd speed rpm : 550

travel mm : 3.00...3.60

4th speed rpm : 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1250

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del. quantity : 75.0...77.0

1000 : (73.0...79.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 48...56

Testing:

1st rack travel in: 10.00
Speed rpm : 1240...1250
2nd rack travel in: 4.00
Speed rpm : 1310...1340
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.3

Testing:

Speed rpm : 100
Minimum rack travel: 9.70
Speed rpm : 300
Rack travel in mm : 8.20...8.40

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 11.00...11.10
2nd speed rpm : 600
Rack travel in m: 12.00...12.20
3rd speed rpm : 800
Rack travel in m: 11.60...11.80
4th speed rpm : 900
Rack travel in m: 11.20...11.40

START CUT-OUT

Speed 1/min : 200 (230)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/ : 65.0...68.0
1000 s: (62.5...70.5)
Spread cm3 : 5.00
1000 s: (7.0)
Speed rpm : 800
Del.quantity cm3/ : 70.0...73.0
1000 s: (67.5...75.5)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 10.00
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 78.0...88.0
1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 8.20...8.40
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 6,0 G
Edition : 15.08.89
Replaces : 12.85
Test oil : ISO-4113

Combination no. : 0 403 446 104

Injection pump
Pump designation : PES6MW100/320RS1004
EP type number : 0 413 406 003
Governor
Governor design. : RQV300...1400MW6R
Governor no. : 0 420 083 002

Customer-spec. information
Customer : VOLVO-TRUCK

Engine : TD60B

1st version kW : 132.0
Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 173...176

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90
: (2.75...2.95)

Rack travel in mm : 9.00...12.00

G20

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 11.00...11.10

Del. quantity cm³/ : 8.5...8.7

100 s: (8.3...8.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.2...5.4

Del. quantity cm³/ : 0.9...1.3

100 s: (0.7...1.6)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1400

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 670

Del. quantity : 85.0...87.0

1000 : (83.0...89.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 60...68

Testing:

1st rack travel in: 10.00

Speed rpm : 1440...1450

2nd rack travel in: 4.00

Speed rpm : 1550...1580

4th rack travel in: 1700

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 8...16
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack trave: 7.00
Speed rpm : 300
Rack travel in mm : 5.20...5.40
Rack travel in mm : 2.00
Speed rpm : 420...480

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 210
Rack travel mm : 9.70...9.80

Measurement

Speed 1/min : 500

1st pressure hPa : 670
Rack travel in m: 11.00...11.10
2nd pressure hPa : -
Rack travel in m: 9.30...9.40
3rd pressure hPa : 270
Rack travel in m: 10.20...10.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 670
Speed rpm : 1400
Del.quantity cm3/ : 86.5...90.5
1000 s: (84.5...92.5)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 48.0...50.0
1000 s: (46.0...52.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.00
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.20...5.40
Del.quantity cm3/ : 9.5...13.5
1000 s: (7.0...16.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 6,0 N
Edition : 15.08.89
Replaces : 12.85
Test oil : ISO-4113

Combination no. : 0 403 446 110

Injection pump
Pump designation : PES6MW100/32ORS1004
EP type number : 0 413 406 005
Governor
Governor design. : RQV300...1400MW22
Governor no. : 0 420 083 019

Customer-spec. information
Customer : VOLVO

Engine : TD60B

1st version kW : 132.0
Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 173...176

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90
: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 11.00...11.10

Del. quantity cm³/ : 8.5...8.7

100 s: (8.3...8.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 4.8...5.0

Del. quantity cm³/ : 0.9...1.3

100 s: (0.7...1.6)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1400

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 500

Del. quantity : 85.0...87.0

1000 : (83.0...89.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 56...64

Testing:

1st rack travel in: 10.00

Speed rpm : 1440...1450

2nd rack travel in: 4.00

Speed rpm : 1565...1595

4th rack travel in: 1700

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 7...15
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 4.9

Testing:
Speed rpm : 100
Minimum rack travel: 6.50
Speed rpm : 300
Rack travel in mm : 4.80...5.00

CONSTANT REGULATION
Speed rpm : 320...460

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 190
Rack travel mm : 9.90...10.00

Measurement
Speed 1/min : 500

1st pressure hPa : 500
Rack travel in m: 11.00...11.10
2nd pressure hPa : -
Rack travel in m: 9.50...9.60
3rd pressure hPa : 255
Rack travel in m: 10.30...10.60

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 1000
Del.quantity cm3/ : 72.0...74.0
1000 s: (70.0...76.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.00
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...150.0
1000 s: (117.0...153.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.80...5.00
Del.quantity cm3/ : 9.5...13.5
1000 s: (7.0...16.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 5,7 A 12
 Edition : 19.05.88
 Replaces : 20.08.87
 Test oil : ISO-4113

Combination no. : 0 403 446 124

Injection pump
 Pump designation : PES6MW100/72ORS1101
 EP type number : 0 413 406 102
 Governor
 Governor design. : RQV300...1300MW34
 Governor no. : 0 420 083 032

Customer-spec. information
 Customer : DB

Engine : OM362LA

1st version kW : 141.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.20...3.30
 : (3.15...3.35)
 Rack travel in mm : 9.00...12.00

G24

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.90...12.00

Del. quantity cm³/ : 9.8...10.0

100 s: (9.6...10.2)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.0...6.1

Del. quantity cm³/ : 0.9...1.3

100 s: (0.7...1.5)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1475

travel mm : 8.60...9.00

2nd speed rpm : 1340

travel mm : 7.50...7.70

3rd speed rpm : 500

travel mm : 2.60...3.20

4th speed rpm : 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1300

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del. quantity : 98.0...100.0

1000 : (96.0...102.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 57...65

Testing:

1st rack travel in: 10.90
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1460...1490
4th rack travel in: 1600
Speed rpm : 0.10...1.00

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack travel: 7.60
Speed rpm : 300
Rack travel in mm : 6.00...6.10
Rack travel in mm : 2.00
Speed rpm : 460...520

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.20...10.30

Measurement

Speed 1/min : 500

1st pressure hPa : 100
Rack travel in m: 10.60...10.70
2nd pressure hPa : 125
Rack travel in m: 11.10...11.30
3rd pressure hPa : 700
Rack travel in m: 11.90...12.00

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 800
Del.quantity cm3/ : 87.5...90.5
1000 s: (85.0...93.0)

Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 50.0...52.0
1000 s: (48.0...54.0)

RACK STOP ADJUSTMENT

Speed rpm : 100

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 78.0...88.0
1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.00...6.10
Del.quantity cm3/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 5,7 A 11
Edition : 13.06.88
Replaces : 20.08.87
Test oil : ISO-4113

Combination no. : 0 403 446 134

Injection pump
Pump designation : PES6MW100/720RS1101
EP type number : 0 413 406 102
Governor
Governor design. : RQV300...1300MW44
Governor no. : 0 420 083 053

Customer-spec. information
Customer : DB

Engine : OM362LA

1st version kW : 141.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 3.20...3.30
(3.15...3.35)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.90...12.00

Del. quantity cm³/ : 9.8...10.0

100 s : (9.6...10.2)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.0...6.1

Del. quantity cm³/ : 0.9...1.3

100 s : (0.7...1.5)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.50...9.90

2nd speed rpm : 1350

travel mm : 8.50...8.70

3rd speed rpm : 450

travel mm : 2.40...3.00

4th speed rpm : 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1330

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h : 700

Del. quantity : 98.0...100.0

1000 : (96.0...102.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 60...68

Testing:

1st rack travel in: 10.90
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1435...1465
4th rack travel in: 1600
Speed rpm : 0.10...1.00

LOW IDLE 1

Control lever
position degrees: 7...15
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack travel: 7.60
Speed rpm : 300
Rack travel in mm : 6.00...6.10
Rack travel in mm : 2.00
Speed rpm : 520...580

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.00...10.10

Measurement

Speed 1/min : 500

1st pressure hPa : 100
Rack travel in m: 10.40...10.50
2nd pressure hPa : 125
Rack travel in m: 10.90...11.10
3rd pressure hPa : 700
Rack travel in m: 11.90...12.00

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 800
Del. quantity cm3/ : 87.5...90.5
1000 s: (85.0...93.0)

Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm3/ : 47.5...49.5
1000 s: (45.5...51.5)

RACK STOP ADJUSTMENT

Speed rpm : 100

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.90
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 78.0...88.0
1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.00...6.10
Del. quantity cm3/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 8,7 0
Edition : 13.06.88
Replaces : 20.08.87
Test oil : ISO-4113

Combination no. : 0 403 446 143

Injection pump
Pump designation : PES6MW100/72ORS1101
EP type number : 0 413 406 102
Governor
Governor design. : RQV300...1300MW44-1
Governor no. : 0 420 083 064

Customer-spec. information
Customer : DB

Engine : OM362LA

1st version kW : 141.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 3.20...3.30
: (3.15...3.35)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.90...12.00

Del. quantity cm³/ : 9.8...10.0

100 s : (9.6...10.2)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.0...6.1

Del. quantity cm³/ : 0.9...1.3

100 s : (0.7...1.5)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.50...9.90

2nd speed rpm : 1350

travel mm : 8.50...8.70

3rd speed rpm : 450

travel mm : 2.40...3.00

4th speed rpm : 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1330

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h : 700

Del. quantity : 98.0...100.0

1000 : (96.0...102.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 60...68

Testing:

1st rack travel in: 10.90
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1435...1465
4th rack travel in: 1600
Speed rpm : 0.10...1.00

LOW IDLE 1

Control lever
position degrees: 7...15
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack travel: 7.60
Speed rpm : 300
Rack travel in mm : 6.00...6.10
Rack travel in mm : 2.00
Speed rpm : 520...580

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.20...10.30

Measurement

Speed 1/min : 500

1st pressure hPa : 100
Rack travel in m: 10.60...10.70
2nd pressure hPa : 125
Rack travel in m: 11.10...11.30
3rd pressure hPa : 700
Rack travel in m: 11.90...12.00

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 800
Del.quantity cm3/ : 87.5...90.5
1000 s: (85.0...93.0)

Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 50.0...52.0
1000 s: (48.0...54.0)

RACK STOP ADJUSTMENT

Speed rpm : 100

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.90
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 78.0...88.0
1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.00...6.10
Del.quantity cm3/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:
Set intermediate-speed stop (ZDA) to
contact at 1300 1/min, then turn back
1/2 turn.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 11
 Edition : 24.06.88
 Replaces : 11.85
 Test oil : ISO-4113

Combination no. : 0 403 446 145

Injection pump
 Pump designation : PES6MW100/720RS1114
 EP type number : 0 413 406 111
 Governor
 Governor design. : RQV300...1300MW48
 Governor no. : 0 420 083 066

Customer-spec. information
 Customer : DB

Engine : OM366A

1st version kW : 125.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Rack travel in mm : 9.00...12.00

H02

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.00...11.10

Del. quantity cm³/ : 7.7...7.9

100 s: (7.5...8.1)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.8...7.9

Del. quantity cm³/ : 0.9...1.3

100 s: (0.7...1.5)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.50...9.90

2nd speed rpm : 1350

travel mm : 8.50...8.70

3rd speed rpm : 450

travel mm : 2.40...3.00

4th speed rpm : 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1330

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Del. quantity : 77.0...79.0

1000 : (75.0...81.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 48...56

Testing:

1st rack travel in: 10.00
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1430...1460
4th rack travel in: 1520
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 14...22
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.8

Testing:

Speed rpm : 100
Minimum rack travel: 9.40
Speed rpm : 300
Rack travel in mm : 7.80...7.90
Rack travel in mm : 2.00
Speed rpm : 500...560

CONSTANT REGULATION

Speed rpm : 330...600

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1300
Rack travel in m: 11.00...11.10
2nd speed rpm : 700
Rack travel in m: 12.10...12.20
3rd speed rpm : 720
Rack travel in m: 12.10...12.20
4th speed rpm : 800
Rack travel in m: 11.80...12.00
5th speed rpm : 900
Rack travel in m: 11.40...11.70

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del. quantity cm³/ : 74.5...77.5
1000 s: (72.0...80.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

H03

1mm rack travel less than

full load rack tr: 10.00
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 78.0...88.0
1000 s: (75.0...91.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.80...7.90
Del. quantity cm³/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 4
 Edition : 13.06.88
 Replaces : 11.85
 Test oil : ISO-4113

Combination no. : 0 403 446 147

Injection pump
 Pump designation : PES6MW100/720RS1115
 EP type number : 0 413 406 110
 Governor
 Governor design. : RQV300...1300MW50
 Governor no. : 0 420 083 071

Customer-spec. information
 Customer : DB

Engine : OM366LA

1st version kW : 148.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 3.20...3.30
 : (3.15...3.35)

Rack travel in mm : 9.00...12.00

H04

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.90...12.00

Del. quantity cm³/ : 9.7...9.9

100 s : (9.5...10.1)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...5.7

Del. quantity cm³/ : 0.9...1.3

100 s : (0.7...1.5)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.50...9.90

2nd speed rpm : 1350

travel mm : 8.50...8.70

3rd speed rpm : 450

travel mm : 2.40...3.00

4th speed rpm : 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1340

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h : 700

Del. quantity : 97.0...99.0

1000 : (95.0...101.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 50...58

Testing:

1st rack travel in: 10.90
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1435...1465
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.6

Testing:

Speed rpm : 100
Minimum rack travel: 7.20
Speed rpm : 300
Rack travel in mm : 5.60...5.70

CONSTANT REGULATION

Speed rpm : 370...550

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 180
Rack travel mm : 10.80...10.90

Measurement

Speed 1/min : 500

1st pressure hPa : 700
Rack travel in m: 11.90...12.00
2nd pressure hPa : -
Rack travel in m: 10.10...10.20
3rd pressure hPa : 210
Rack travel in m: 11.40...11.70

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 600
Del.quantity cm3/ : 82.0...85.0
1000 s: (79.5...87.5)

Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 53.0...55.0
1000 s: (51.0...57.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 83.0...93.0
1000 s: (80.0...96.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.60...5.70
Del.quantity cm3/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 3
 Edition : 16.06.88
 Replaces : 12.09.86
 Test oil : ISO-4113

Combination no. : 0 403 446 155

Injection pump
 Pump designation : PES6MW100/72ORS1115
 EP type number : 0 413 406 110
 Governor
 Governor design. : RQV300...1300MW62
 Governor no. : 0 420 083 085

Customer-spec. information
 Customer : DB

Engine : OM366LA

1st version kW : 148.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.20...3.30
 : (3.15...3.35)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.90...12.00

Del. quantity cm³/ : 9.7...9.9
 100 s: (9.5...10.1)

Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 300.0
 Rack travel in mm : 5.6...5.7
 Del. quantity cm³/ : 0.9...1.3
 100 s: (0.7...1.5)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450
 travel mm : 9.50...9.90
 2nd speed rpm : 1350
 travel mm : 8.50...8.70
 3rd speed rpm : 450
 travel mm : 2.40...3.00
 4th speed rpm : 300
 travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1340
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1300
 Aneroid pressure h: 700
 Del. quantity : 97.0...99.0
 1000 : (95.0...101.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 50...58

Testing:

1st rack travel in: 10.90
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1435...1465
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.6

Testing:

Speed rpm : 100
Minimum rack travel: 7.20
Speed rpm : 300
Rack travel in mm : 5.60...5.70

CONSTANT REGULATION

Speed rpm : 370...550

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 11.90...12.00

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.40...10.50
2nd pressure hPa : 180
Rack travel in m: 10.80...10.90
3rd pressure hPa : 210
Rack travel in m: 11.60...11.90

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 600
Del.quantity cm3/ : 82.5...85.5
1000 s: (80.0...88.0)

Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 57.0...59.0
1000 s: (55.0...61.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 83.0...93.0
1000 s: (80.0...96.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.60...5.70
Del.quantity cm3/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

Set intermediate-speed stop (ZDA) to
contact at 1300 1/min, then turn back
1/2 turn.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 47
 Edition : 13.06.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 156
 Injection pump
 Pump designation : PES6MW100/72ORS1120
 EP type number : 0 413 406 112
 Governor
 Governor design. : RQV300...1300MW59
 Governor no. : 0 420 083 077

Customer-spec. information
 Customer : DB

Engine : OM366LA

1st version kW : 141.7
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00

H08

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 12.10...12.20

Del. quantity cm³/ : 8.6...8.8

100 s : (8.4...9.0)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.0...6.1

Del. quantity cm³/ : 0.9...1.3

100 s : (0.7...1.5)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.50...9.90

2nd speed rpm : 1350

travel mm : 8.50...8.70

3rd speed rpm : 450

travel mm : 2.40...3.00

4th speed rpm : 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1340

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h : 700

Del. quantity : 86.0...88.0

1000 : (84.0...90.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 48...56

Testing:
1st rack travel in: 11.10
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1440...1470
4th rack travel in: 1530
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0

Testing:
Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.00...6.10

CONSTANT REGULATION
Speed rpm : 320...550

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 260
Rack travel mm : 11.00...11.10

Measurement
Speed 1/min : 500

1st pressure hPa : 700
Rack travel in m: 12.00...12.10
2nd pressure hPa : -
Rack travel in m: 10.80...10.90
3rd pressure hPa : 310
Rack travel in m: 11.70...12.00

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 750
Del.quantity cm3/ : 75.5...78.5
1000 s: (73.0...81.0)

H09

Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 47.0...49.0
1000 s: (45.0...51.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.10
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 83.0...93.0
1000 s: (80.0...96.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.00...6.10
Del.quantity cm3/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 14
Edition : 30.05.88
Replaces : 12.09.86
Test oil : ISO-4113

Combination no. : 0 403 446 169

Injection pump
Pump designation : PES6MW100/72ORS1131
EP type number : 0 413 406 123
Governor
Governor design. : RQV300...1300MW68
Governor no. : 0 420 083 101

Customer-spec. information
Customer : DB

Engine : OM 366 LA

1st version kW : 150.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
: (3.65...3.85)
Rack travel in mm : 9.00...12.00

H10

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.90...12.00

Del. quantity cm³/ : 9.7...9.9

100 s: (9.5...10.1)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.0

Del. quantity cm³/ : 0.9...1.3

100 s: (0.7...1.5)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.40...8.60

2nd speed rpm : 1450

travel mm : 9.30...9.70

3rd speed rpm : 600

travel mm : 3.90...4.50

4th speed rpm : 300

travel mm : 0.80...1.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del. quantity : 97.0...99.0

1000 : (95.0...101.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 50...58

Testing:

1st rack travel in: 10.90
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1440...1470
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 11...19
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.9

Testing:

Speed rpm : 100
Minimum rack travel: 7.60
Speed rpm : 300
Rack travel in mm : 5.90...6.00

CONSTANT REGULATION

Speed rpm : 350...550

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 170
Rack travel mm : 10.40...10.50

Measurement

Speed 1/min : 500

1st pressure hPa : 700
Rack travel in m: 11.90...12.00
2nd pressure hPa : -
Rack travel in m: 10.10...10.20
3rd pressure hPa : 225
Rack travel in m: 11.50...11.80

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 600
Del. quantity cm3/ : 83.0...86.0
1000 s: (80.5...88.5)

Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm3/ : 52.0...54.0
1000 s: (50.0...56.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 10.90
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 83.0...93.0
1000 s: (80.0...96.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...6.00
Del. quantity cm3/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 25
Edition : 30.05.88
Replaces : 13.05.87
Test oil : ISO-4113

Combination no. : 0 403 446 170

Injection pump
Pump designation : PES6MW100/720RS1144
EP type number : 0 413 406 138
Governor
Governor design. : RQV300...1300MW69
Governor no. : 0 420 083 102

Customer-spec. information
Customer : DB

Engine : OM366A

1st version kW : 125.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 3.70...3.80
: (3.65...3.85)

Rack travel in mm : 9.00...12.00

H12

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.00...11.10

Del. quantity cm³/ : 7.7...7.9

100 s : (7.5...8.1)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.8...7.9

Del. quantity cm³/ : 0.9...1.3

100 s : (0.7...1.5)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1340

travel mm : 8.40...8.60

2nd speed rpm : 1450

travel mm : 8.70...9.10

3rd speed rpm : 600

travel mm : 3.90...4.50

4th speed rpm : 300

travel mm : 0.80...1.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Del. quantity : 77.0...79.0

1000 : (75.0...81.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 50...58

Testing:
1st rack travel in: 10.00
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1425...1455
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.8

Testing:
Speed rpm : 100
Minimum rack travel: 10.20
Speed rpm : 300
Rack travel in mm : 7.80...7.90

CONSTANT REGULATION
Speed rpm : 330...500

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 11.00...11.10
2nd speed rpm : 750
Rack travel in m: 11.90...12.00
3rd speed rpm : 700
Rack travel in m: 12.00...12.20
4th speed rpm : 1100
Rack travel in m: 11.00...11.20

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 70.5...73.5
1000 s: (68.0...76.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.00
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 78.0...88.0
1000 s: (75.0...91.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.80...7.90
Del.quantity cm³/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 6,1 N 7
Edition : 08.06.88
Replaces : 09.03.87
Test oil : ISO-4113

Combination no. : 0 403 446 186

Injection pump
Pump designation : PES6MW100/72ORS1133
EP type number : 0 413 406 126
Governor
Governor design. : RQV325...1325MW79
Governor no. : 0 420 083 123

Customer-spec. information
Customer : KHD

Engine : BF 6L 913

1st version kW : 124.0
Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)

Rack travel in mm : 9.00...12.00

H14

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1325

Rack travel in mm : 10.50...10.60

Del. quantity cm³/ : 10.1...10.3

100 s: (9.9...10.5)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 325.0

Rack travel in mm : 6.8...6.9

Del. quantity cm³/ : 1.1...1.5

100 s: (0.9...1.7)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1375

travel mm : 8.70...8.90

2nd speed rpm : 1430

travel mm : 9.50...9.90

3rd speed rpm : 325

travel mm : 1.50...1.90

4th speed rpm : 600

travel mm : 2.70...3.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1400

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1325

Aneroid pressure h: 900

Del. quantity : 101.0...103.0

1000 : (99.0...105.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 50...58

Testing:

1st rack travel in: 9.50
Speed rpm : 1370...1380
2nd rack travel in: 4.00
Speed rpm : 1445...1475
4th rack travel in: 1550
Speed rpm : 0.10...1.00

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 6.8

Testing:

Speed rpm : 100
Minimum rack travel: 8.60
Speed rpm : 325
Rack travel in mm : 6.80...6.90

CONSTANT REGULATION

Speed rpm : 350...650

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 450
Rack travel mm : 10.20...10.00

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.90...10.00
2nd pressure hPa : 450
Rack travel in m: 10.20...10.00
3rd pressure hPa : 900
Rack travel in m: 10.50...10.60

START CUT-OUT

Speed 1/min : 245 (255)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 850
Del.quantity cm3/ : 93.0...97.0
1000 s: (91.0...99.0)

Spread cm3 : 3.50
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 57.0...59.0
1000 s: (55.0...61.0)

RACK STOP ADJUSTMENT

Speed rpm : 100

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.50
Speed rpm : 1370...1380

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...130.0
1000 s: (117.0...133.0)

LOW IDLE

Speed rpm : 325
Rack travel in mm : 6.80...6.90
Del.quantity cm3/ : 11.0...15.0
1000 s: (9.0...17.0)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 28
Edition : 01.07.88
Replaces : 19.02.88
Test oil : ISO-4113

Combination no. : 0 403 446 188

Injection pump
Pump designation : PES6MW100/72ORS1144
EP type number : 0 413 406 138
Governor
Governor design. : RQV300...1300MW48-4
Governor no. : 0 420 083 126

Customer-spec. information
Customer : DB

Engine : OM366A

1st version kW : 100.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
: (3.65...3.85)
Rack travel in mm : 19.00...21.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.10...10.20

Del. quantity cm³/ : 6.4...6.6

100 s: (6.2...6.8)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.3...7.4

Del. quantity cm³/ : 0.9...1.3

100 s: (0.7...1.5)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1340

travel mm : 8.50...8.70

2nd speed rpm : 1450

travel mm : 9.30...9.70

3rd speed rpm : 500

travel mm : 2.70...3.30

4th speed rpm : 300

travel mm : 1.20...1.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Del. quantity : 64.0...66.0

1000 : (62.0...68.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 50...58

Testing:

1st rack travel in: 9.10
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1415...1445
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.3

Testing:

Speed rpm : 100
Minimum rack travel: 9.30
Speed rpm : 300
Rack travel in mm : 7.30...7.40

CONSTANT REGULATION

Speed rpm : 330...500

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1300
Rack travel in m: 10.10...10.20
2nd speed rpm : 750
Rack travel in m: 11.10...11.20
3rd speed rpm : 600
Rack travel in m: 11.10...11.20
4th speed rpm : 900
Rack travel in m: 10.70...10.90

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 61.5...64.5
1000 s: (59.0...67.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.10
Speed rpm : 1340...1350

H17

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 78.0...88.0
1000 s: (75.0...91.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.30...7.40
Del. quantity cm³/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 S
Edition : 15.08.89
Replaces : 09.12.88
Test oil : ISO-4113

Combination no. : 0 403 446 193

Injection pump
Pump designation : PES6MW100/32ORS1159
EP type number : 0 413 406 146
Governor
Governor design. : RQV350...1300MW72-3
Governor no. : 0 420 083 142

Customer-spec. information
Customer : NAVISTAR

Engine : DT-466

1st version kW : 136.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 016

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,5

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 10.40...10.50

Del. quantity cm³/ : 8.8...9.0

100 s: (8.6...9.2)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.4...6.5

Del. quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1250

travel mm : 7.80...8.00

2nd speed rpm : 1340

travel mm : 8.80...9.20

3rd speed rpm : 500

travel mm : 2.60...3.20

4th speed rpm : 350

travel mm : 1.30...1.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del. quantity : 88.0...90.0

1000 : (86.0...92.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 46...51

Testing:

1st rack travel in: 9.40
Speed rpm : 1370...1390
2nd rack travel in: 4.00
Speed rpm : 1475...1485
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 11...19
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.4

Testing:

Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 6.40...6.50

CONSTANT REGULATION

Speed rpm : 370...500

START CUT-OUT

Speed 1/min : 180 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1300
Del. quantity cm³/ : 91.5...95.5
1000 s: (89.5...97.5)
Spread cm³ : 6.50
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.40
Speed rpm : 1370...1390

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.40...6.50

Del. quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:
Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 R21
Edition : 15.08.89
Replaces : 09.12.88
Test oil : ISO-4113

Combination no. : 0 403 446 195

Injection pump
Pump designation : PES6MW100/320RS1112
EP type number : 0 413 406 108
Governor
Governor design. : RQV350...1200MW46-13
Governor no. : 0 420 083 144

Customer-spec. information
Customer : NAVISTAR

Engine : DTA-466

1st version kW : 180.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 016

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,5

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

H2O

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 12.40...12.50

Del. quantity cm³/ : 11.9...12.1

100 s: (11.7...12.3)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.3...6.4

Del. quantity cm³/ : 1.9...2.3

100 s: (1.6...2.5)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.30...8.50

2nd speed rpm : 1460

travel mm : 9.10...9.50

3rd speed rpm : 550

travel mm : 3.10...3.70

4th speed rpm : 350

travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 800

Del. quantity : 119.5...121.5

1000 : (117.5...123.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 43...48

Testing:

1st rack travel in: 11.40
Speed rpm : 1265...1285
2nd rack travel in: 4.00
Speed rpm : 1395...1405
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 12...20
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.3

Testing:

Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 6.30...6.40

CONSTANT REGULATION

Speed rpm : 360...450

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 190
Rack travel mm : 11.20...11.30

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.60...10.70
2nd pressure hPa : 360
Rack travel in m: 11.90...12.20
3rd pressure hPa : 800
Rack travel in m: 12.40...12.50

START CUT-OUT

Speed 1/min : 180 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800
Speed rpm : 1200
Del. quantity cm³/ : 122.0...126.0
1000 s: (120.0...128.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -

H21

Speed rpm : 500
Del. quantity cm³/ : 86.5...88.5
1000 s: (84.5...90.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.40
Speed rpm : 1265...1285

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.30...6.40
Del. quantity cm³/ : 19.0...23.0
1000 s: (16.5...25.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 R23
 Edition : 15.08.89
 Replaces : 09.12.88
 Test oil : ISO-4113

Combination no. : 0 403 446 196

Injection pump
 Pump designation : PES6MW100/32ORS1112
 EP type number : 0 413 406 108
 Governor
 Governor design. : RQV350...1200MW46-14
 Governor no. : 0 420 083 145

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-466

1st version kW : 169.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 016

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,5

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _ _ _

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 11.70...11.80

Del. quantity cm³/ : 10.8...11.0

100 s: (10.6...11.2)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.2...6.3

Del. quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.30...8.50

2nd speed rpm : 1460

travel mm : 9.10...9.50

3rd speed rpm : 550

travel mm : 3.10...3.70

4th speed rpm : 350

travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 800

Del. quantity : 108.0...110.0

1000 : (106.0...112.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 44...49

Testing:

1st rack travel in: 10.70
Speed rpm : 1250...1270
2nd rack travel in: 4.00
Speed rpm : 1390...1400
4th rack travel in: 1460
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 12...20
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.2

Testing:

Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 6.20...6.30

CONSTANT REGULATION

Speed rpm : 360...450

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 180
Rack travel mm : 11.00...11.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.70...10.80
2nd pressure hPa : 270
Rack travel in m: 11.30...11.60
3rd pressure hPa : 800
Rack travel in m: 11.70...11.80

START CUT-OUT

Speed 1/min : 180 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800
Speed rpm : 1200
Del. quantity cm³/ : 111.0...115.0
1000 s: (109.0...117.0)
Spread cm³ : 6.50
1000 s: (7.0)
Aneroid pressure h: -

Speed rpm : 500
Del. quantity cm³/ : 86.5...88.5
1000 s: (84.5...90.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.70
Speed rpm : 1250...1270

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.20...6.30
Del. quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 R24
 Edition : 15.08.89
 Replaces : 09.12.88
 Test oil : ISO-4113

Combination no. : 0 403 446 197

Injection pump
 Pump designation : PES6MW100/32ORS1112
 EP type number : 0 413 406 108
 Governor
 Governor design. : RQV350...1200MW46-15
 Governor no. : 0 420 083 146

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-466

1st version kW : 158.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 016

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,5

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 10.90...11.00

Del. quantity cm3/ : 9.7...9.9

100 s: (9.5...10.1)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.3...6.4

Del. quantity cm3/ : 1.9...2.3

100 s: (1.6...2.5)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.30...8.50

2nd speed rpm : 1460

travel mm : 9.10...9.50

3rd speed rpm : 550

travel mm : 3.10...3.70

4th speed rpm : 350

travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 800

Del. quantity : 97.5...99.5

1000 : (95.5...101.5)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 43...48

Testing:

1st rack travel in: 9.90
Speed rpm : 1270...1290
2nd rack travel in: 4.00
Speed rpm : 1380...1390
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 10...18
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.3

Testing:

Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 6.30...6.40

CONSTANT REGULATION

Speed rpm : 360...450

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 200
Rack travel mm : 10.70...10.80

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.60...10.70
2nd pressure hPa : 280
Rack travel in m: 10.80...11.00
3rd pressure hPa : 800
Rack travel in m: 10.90...11.00

START CUT-OUT

Speed 1/min : 180 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800
Speed rpm : 1200
Del. quantity cm³/ : 99.5...103.5
1000 s: (97.5...105.5)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -

H25

Speed rpm : 500
Del. quantity cm³/ : 86.5...88.5
1000 s: (84.5...90.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1270...1290

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.30...6.40
Del. quantity cm³/ : 19.0...23.0
1000 s: (16.5...25.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 T
Edition : 15.08.89
Replaces : 28.04.89
Test oil : ISO-4113

Combination no. : 0 403 446 198

Injection pump
Pump designation : PES6MW100/32ORS1160
EP type number : 0 413 406 147
Governor
Governor design. : RQV350...1200MW46-16
Governor no. : 0 420 083 147

Customer-spec. information
Customer : NAVISTAR

Engine : DTA-466

1st version kW : 176.4
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 016

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,5

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 12.80...12.90

Del. quantity cm3/ : 12.5...12.7

100 s: (12.3...12.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.5...6.6

Del. quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.30...8.50

2nd speed rpm : 1460

travel mm : 9.10...9.50

3rd speed rpm : 550

travel mm : 3.10...3.70

4th speed rpm : 350

travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 800

Del. quantity : 125.0...127.0

1000 : (123.0...129.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 44...49

Testing:

1st rack travel in: 11.80
Speed rpm : 1260...1280
2nd rack travel in: 4.00
Speed rpm : 1385...1395
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 12...20
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.5

Testing:

Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 6.50...6.60

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 800
Pressure hPa : 180
Rack travel mm : 10.40...10.50

Measurement

Speed 1/min : 800

1st pressure hPa : -
Rack travel in m: 10.10...10.20
2nd pressure hPa : 480
Rack travel in m: 11.90...12.20
3rd pressure hPa : 800
Rack travel in m: 12.80...12.90

START CUT-OUT

Speed 1/min : 180 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800
Speed rpm : 1200
Del. quantity cm³/ : 127.0...131.0
1000 s: (125.0...133.0)
Spread cm³ : 6.50
1000 s: (7.0)
Aneroid pressure h: -

H27

Speed rpm : 800
Del. quantity cm³/ : 82.0...84.0
1000 s: (80.0...86.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.80
Speed rpm : 1260...1280

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.50...6.60
Del. quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 8,8 R
Edition : 13.06.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 403 446 202

Injection pump
Pump designation : PES6MW100/320RS1167
EP type number : 0 413 406 151
Governor
Governor design. : RQV275...1250MW25-7
Governor no. : 0 420 180 381

Customer-spec. information
Customer : RVI

Engine : MIDR 06 02 12L

1st version kW : 122.0
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.95...3.05
: (2.90...3.10)
Rack travel in mm : 9.00...12.00

H28

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Del. quantity cm3/ : 10.3...10.5

100 s: (10.1...10.7)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 275.0

Rack travel in mm : 5.5...5.7

Del. quantity cm3/ : 2.3...2.7

100 s: (2.0...2.9)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.20...8.40

2nd speed rpm : 1450

travel mm : 8.90...9.30

3rd speed rpm : 275

travel mm : 1.00...1.40

4th speed rpm : 900

travel mm : 5.40...6.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 1000

Del. quantity : 103.0...105.0

1000 : (101.0...107.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 8...16

Testing:

1st rack travel in: 11.60
Speed rpm : 1320...1330
2nd rack travel in: 4.0
Speed rpm : 1485...1515
4th rack travel in: 1650
Speed rpm : 1.00...0.00

LOW IDLE 1

Control lever
position degrees: 60...68
Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 7.0
Speed rpm : 275
Rack travel in mm : 7.10...6.90
Speed rpm : 200
Maximum rack travel: 7.40

CONSTANT REGULATION

Speed rpm : 370...440

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 160
Rack travel mm : 10.80...10.70

Measurement

Speed 1/min : 500

1st pressure hPa : 1000
Rack travel in mm: 12.50...12.60
2nd pressure hPa : -
Rack travel in mm: 10.20...10.10
3rd pressure hPa : 320
Rack travel in mm: 12.20...11.90

START CUT-OUT

Speed 1/min : 190 (200)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 900
Del. quantity cm³/ : 101.0...105.0
1000 s: (99.0...107.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -

Speed rpm : 500
Del. quantity cm³/ : 52.0...54.0
1000 s: (50.0...56.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.60
Speed rpm : 1320...1330

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 100.0...110.0
1000 s: (97.0...113.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 275
Rack travel in mm : 7.10...6.90
Del. quantity cm³/ : 23.0...27.0
1000 s: (20.5...29.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:
Start-of-delivery mark 9.5° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 40
Edition : 01.07.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 403 446 207
Injection pump
Pump designation : PES6MW100/72ORS1144
EP type number : 0 413 406 138
Governor
Governor design. : RQ300/1300MW96
Governor no. : 0 420 082 032

Customer-spec. information
Customer : DB

Engine : OM366A

1st version kW : 125.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values ____

BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 3.70...3.80
(3.65...3.85)

Rack travel in mm : 9.00...12.00

J02

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.20...11.30

Del. quantity cm³/ : 7.9...8.1

100 s : (7.7...8.3)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.4...7.6

Del. quantity cm³/ : 1.0...1.4

100 s : (0.7...1.6)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1425

travel mm : 9.50...9.90

2nd speed rpm : 1350

travel mm : 7.80...8.00

3rd speed rpm : 525

travel mm : 4.90...5.50

4th speed rpm : 300

travel mm : 2.10...2.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 1200

Rack travel in mm : 12.70...14.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Del. quantity : 79.0...81.0

1000 : (77.0...83.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 34...42

Setting point:
Speed rpm : 1200
Rack travel in mm : 13.5

Testing:
1st rack travel in: 10.20
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1425...1455
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 9...17
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.5

Testing:
Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 300
Rack travel in mm : 7.40...7.60

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 11.20...11.30
2nd speed rpm : 900
Rack travel in m: 11.90...12.10
3rd speed rpm : 600
Rack travel in m: 12.40...12.60

START CUT-OUT

Speed 1/min : 180 (200)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 900
Del. quantity cm³/ : 77.0...80.0
1000 s: (74.5...82.5)
Spread cm³ : 5.00
1000 s: (7.0)
Speed rpm : 600
Del. quantity cm³/ : 70.0...73.0
1000 s: (67.5...75.5)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

J03

1mm rack travel less than

full load rack tr: 10.20
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 80.0...90.0
1000 s: (77.0...93.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.40...7.60
Del. quantity cm³/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 8,8 S
Edition : 15.08.89
Replaces : 13.06.88
Test oil : ISO-4113

Combination no. : 0 403 446 208

Injection pump
Pump designation : PES6MW100/32ORS1171
EP type number : 0 413 406 156
Governor
Governor design. : RQV300...1400MW97
Governor no. : 0 420 083 158

Customer-spec. information
Customer : RVI

Engine : MIDS060212C

1st version kW : 97.0
Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 058

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10
: (2.95...3.15)

Rack travel in mm : 9.00...12.00

J04

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 11.00...11.10

Del. quantity cm³/ : 7.5...7.7

100 s: (7.3...7.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.70...6.90

Del. quantity cm³/ : 1.4...1.8

100 s: (1.1...2.0)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1570

travel mm : 9.20...9.60

2nd speed rpm : 1450

travel mm : 8.30...8.50

3rd speed rpm : 500

travel mm : 3.00...3.40

4th speed rpm : 300

travel mm : 1.10...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del. quantity : 75.0...77.0

1000 : (73.0...79.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 50...58

Testing:

1st rack travel in: 10.00
Speed rpm : 1460...1470
2nd rack travel in: 4.00
Speed rpm : 1565...1595
4th rack travel in: 1700
Speed rpm : 0.00...1.00

Remarks:

:

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.8

Testing:

Speed rpm : 200
Minimum rack travel: 8.50
Speed rpm : 300
Rack travel in mm : 6.70...6.90

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 900
Del. quantity cm³/ : 66.5...69.5
1000 s: (64.0...72.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.00
Speed rpm : 1460...1470

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 90.0...100.0
1000 s: (87.0...103.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.60...6.40
Del. quantity cm³/ : 12.0...16.0
1000 s: (9.5...18.5)
Spread cm³ : 3.50
1000 s: (5.50)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 8,8 T
Edition : 15.08.89
Replaces : 07.10.88
Test oil : ISO-4113

Combination no. : 0 403 446 211

Injection pump
Pump designation : PES6MW100/320RS1176
EP type number : 0 413 406 158
Governor
Governor design. : RQV275...1250MW80
Governor no. : 0 420 083 128

Customer-spec. information
Customer : RVI

Engine : MIDR 060226H

1st version kW : 143.0
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 033

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 11.40...11.50

Del. quantity cm³/ : 9.9...10.1

100 s: (9.7...10.3)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 275.0

Rack travel in mm : 6.40...6.60

Del. quantity cm³/ : 2.0...2.4

100 s: (1.7...2.6)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450
travel mm : 8.90...9.30

2nd speed rpm : 1325
travel mm : 8.00...8.20

3rd speed rpm : 500
travel mm : 3.00...3.60

4th speed rpm : 275
travel mm : 1.00...1.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1320

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 750

Del. quantity : 99.0...101.0

1000 : (97.0...103.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 49...57

Testing:
1st rack travel in: 10.40
Speed rpm : 1330...1350
2nd rack travel in: 4.00
Speed rpm : 1440...1480
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 13...21
Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 6.5

Testing:
Speed rpm : 200
Minimum rack travel: 8.00
Speed rpm : 275
Rack travel in mm : 6.40...6.60

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 750
Rack travel mm : 11.40...11.50

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.40...9.50
2nd pressure hPa : 150
Rack travel in m: 10.00...10.10
3rd pressure hPa : 300
Rack travel in m: 10.90...11.20

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 750
Speed rpm : 750
Del.quantity cm3/ : 94.5...97.5
1000 s: (92.0...100.0)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm3/ : 51.0...53.0
1000 s: (49.0...55.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.40
Speed rpm : 1330...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 88.0...102.0
1000 s: (85.0...105.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 275
Rack travel in mm : 6.40...6.60
Del.quantity cm3/ : 20.0...24.0
1000 s: (17.5...26.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Set start-of-delivery sensor at pre-stroke to 3.50...3.60 mm for cylinder 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 R22
Edition : 15.08.89
Replaces : 09.12.88
Test oil : ISO-4113

Combination no. : 0 403 446 213

Injection pump
Pump designation : PES6MW100/32ORS1112
EP type number : 0 413 406 108
Governor
Governor design. : RQV350...1300MW72-4
Governor no. : 0 420 083 170

Customer-spec. information
Customer : NAVISTAR

Engine : DT-466

1st version kW : 154.5
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 016

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,5

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 10.50...10.60

Del.quantity cm³/ : 9.9...10.1

100 s: (9.7...10.3)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.5...5.6

Del.quantity cm³/ : 1.6...2.0
100 s: (1.3...2.2)

Spread cm³ : 0.3
100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1460
travel mm : 9.10...9.50

2nd speed rpm : 1350
travel mm : 8.30...8.50

3rd speed rpm : 550
travel mm : 3.10...3.70

4th speed rpm : 350
travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 800

Del.quantity : 99.0...101.0
1000 : (97.0...103.0)

Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 43...51

Testing:

1st rack travel in: 9.50
Speed rpm : 1365...1385
2nd rack travel in: 4.00
Speed rpm : 1470...1480
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 9...17
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 7.30
Speed rpm : 350
Rack travel in mm : 5.50...5.60

CONSTANT REGULATION

Speed rpm : 390...480

START CUT-OUT

Speed 1/min : 180 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800
Speed rpm : 1300
Del. quantity cm³/ : 101.0...105.0
1000 s: (99.0...107.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.50
Speed rpm : 1365...1385

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350

J09

Rack travel in mm : 5.50...5.60
Del. quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than $n = 500$ 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 T 2
 Edition : 15.08.89
 Replaces : 09.12.88
 Test oil : ISO-4113

Combination no. : 0 403 446 214

Injection pump
 Pump designation : PES6MW100/32ORS1160
 EP type number : 0 413 406 147
 Governor
 Governor design. : RQV350...1300MW46-18
 Governor no. : 0 420 083 171

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-466

1st version kW : 156.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 016

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,5

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 11.90...12.00

Del. quantity cm³/ : 11.0...11.2

100 s: (10.8...11.4)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.3...6.5

Del. quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1460

travel mm : 9.10...9.50

2nd speed rpm : 1350

travel mm : 8.30...8.50

3rd speed rpm : 550

travel mm : 3.10...3.70

4th speed rpm : 350

travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 8.0

Del. quantity : 119.0...112.0

1000 : (108.0...114.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 42...50

Testing:

1st rack travel in: 10.90
Speed rpm : 1355...1375
2nd rack travel in: 4.00
Speed rpm : 1475...1485
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 8...16
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.4

Testing:

Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 6.30...6.50

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 800
Rack travel mm : 11.90...12.00

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.20...10.30
2nd pressure hPa : 165
Rack travel in m: 10.70...10.80
3rd pressure hPa : 360
Rack travel in m: 11.30...11.60

START CUT-OUT

Speed 1/min : 180 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800
Speed rpm : 1300
Del. quantity cm³/ : 113.0...117.0
1000 s: (111.0...119.0)

Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 74.0...76.0
1000 s: (72.0...78.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.90
Speed rpm : 1355...1375

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.30...6.50
Del. quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:
Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 55
 Edition : 15.08.89
 Replaces : 07.02.89
 Test oil : ISO-4113

Combination no. : 0 403 446 231

Injection pump
 Pump designation : PES6MW100/72ORS1144-1
 EP type number : 0 413 406 159
 Governor
 Governor design. : RQV300...1400MW48-8
 Governor no. : 0 420 083 175

Customer-spec. information
 Customer : DB-NKW

Engine : OM 366 A

1st version kW : 125.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 715 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 10.70...10.80

Del. quantity cm³/ : 7.5...7.7

100 s: (7.3...7.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 8.5...8.7

Del. quantity cm³/ : 0.9...1.3

100 s: (0.6...1.5)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1550

travel mm : 9.10...9.50

2nd speed rpm : 1450

travel mm : 8.30...8.50

3rd speed rpm : 500

travel mm : 2.50...3.10

4th speed rpm : 300

travel mm : 1.00...1.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1430

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del. quantity : 75.0...77.0

1000 : (73.0...79.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 49...57

Testing:

1st rack travel in: 9.70
Speed rpm : 1440...1450
2nd rack travel in: 4.00
Speed rpm : 1535...1565
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.6

Testing:

Speed rpm : 100
Minimum rack travel: 10.00
Speed rpm : 300
Rack travel in mm : 8.50...8.70

TORQUE CONTROL

Dimension a mm : 1.50
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 10.70...10.80
2nd speed rpm : 750
Rack travel in m: 12.20...12.30
3rd speed rpm : 950
Rack travel in m: 11.70...11.90
4th speed rpm : 1200
Rack travel in m: 10.80...11.10

START CUT-OUT

Speed 1/min : 200 (230)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 74.5...77.5
1000 s: (72.0...80.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.70
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 78.0...88.0
1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 8.50...8.70
Del. quantity cm³/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 69
 Edition : 15.08.89
 Replaces : 21.04.89
 Test oil : ISO-4113
 Combination no. : 0 403 446 232
 Injection pump
 Pump designation : PES6MW100/72ORS1144-1
 EP type number : 0 413 406 159
 Governor
 Governor design. : RQV300...1400MW48-11
 Governor no. : 0 420 083 190

Customer-spec. information
 Customer : DB-NKW

Engine : OM366A

1st version kW : 125.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values ____

BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 10.90...11.00

Del. quantity cm³/ : 7.5...7.7

100 s : (7.3...7.9)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.8...8.0

Del. quantity cm³/ : 0.9...1.3

100 s : (0.6...1.5)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1550

travel mm : 9.20...9.60

2nd speed rpm : 1450

travel mm : 8.30...8.50

3rd speed rpm : 550

travel mm : 2.80...3.40

4th speed rpm : 300

travel mm : 1.00...1.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1450

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del. quantity : 75.0...77.0

1000 : (73.0...79.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 48...56

Testing:

1st rack travel in: 9.90
Speed rpm : 1440...1450
2nd rack travel in: 4.00
Speed rpm : 1530...1560
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.9

Testing:

Speed rpm : 100
Minimum rack travel: 9.50
Speed rpm : 300
Rack travel in mm : 7.80...8.00

TORQUE CONTROL

Dimension a mm : 0.60
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 10.90...11.00
2nd speed rpm : 800
Rack travel in m: 11.50...11.60
3rd speed rpm : 1000
Rack travel in m: 11.10...11.30

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800
Del.quantity cm³/ : 67.5...70.5
1000 s: (65.0...73.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 80.0...90.0
1000 s: (77.0...93.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.80...8.00
Del.quantity cm³/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 8,8 S 4
Edition : 18.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 403 446 233

Injection pump
Pump designation : PES6MW100/320RS1171
EP type number : 0 413 406 156
Governor
Governor design. : RQV300...1400MW97-1
Governor no. : 0 420 083 195

Customer-spec. information
Customer : RVI

Engine : MIDS060212C

1st version kW : 97.0
Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 033

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10
: (2.95...3.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 11.00...11.10

Del. quantity cm³/ : 7.5...7.7

100 s: (7.3...7.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.70...6.90

Del. quantity cm³/ : 1.4...1.8

100 s: (1.1...2.0)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1570
travel mm : 9.20...9.60

2nd speed rpm : 1450
travel mm : 8.30...8.50

3rd speed rpm : 500
travel mm : 2.80...3.40

4th speed rpm : 300
travel mm : 1.20...1.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del. quantity : 75.0...77.0

1000 : (73.0...79.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 50...58

Testing:

1st rack travel in: 10.00
Speed rpm : 1460...1470
2nd rack travel in: 4.00
Speed rpm : 1565...1595
4th rack travel in: 1700
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.8

Testing:

Speed rpm : 200
Minimum rack travel: 8.50
Speed rpm : 300
Rack travel in mm : 6.70...6.90

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 900
Del. quantity cm³/ : 66.5...69.5
1000 s: (64.0...72.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack travel: 10.00
Speed rpm : 1460...1470

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 90.0...100.0
1000 s: (87.0...103.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.70...6.90
Del. quantity cm³/ : 14.0...18.0
1000 s: (11.5...20.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 8,8 T 1
 Edition : 18.08.89
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 446 234

Injection pump
 Pump designation : PES6MW100/320RS1176
 EP type number : 0 413 406 158
 Governor
 Governor design. : RQV275...1250MW80-4
 Governor no. : 0 420 083 196

Customer-spec. information
 Customer : RVI

Engine : MIDR 060226H

1st version kW : 143.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 033

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 11.40...11.50

Del. quantity cm³/ : 9.9...10.1

100 s: (9.7...10.3)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 275.0

Rack travel in mm : 6.40...6.60

Del. quantity cm³/ : 2.0...2.4

100 s: (1.7...2.6)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 8.90...9.30

2nd speed rpm : 1325

travel mm : 8.00...8.20

3rd speed rpm : 500

travel mm : 3.00...3.60

4th speed rpm : 275

travel mm : 1.00...1.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1320

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 750

Del. quantity : 99.0...101.0

1000 : (97.0...103.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 49...57

Testing:

1st rack travel in: 10.40
Speed rpm : 1330...1350
2nd rack travel in: 4.00
Speed rpm : 1440...1480
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 13...21
Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 4.9

Testing:

Speed rpm : 200
Minimum rack travel: 8.00
Speed rpm : 275
Rack travel in mm : 6.40...6.60

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 750
Rack travel mm : 11.40...11.50

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.40...9.50
2nd pressure hPa : 150
Rack travel in m: 10.00...10.10
3rd pressure hPa : 300
Rack travel in m: 10.90...11.20

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 750
Speed rpm : 750
Del.quantity cm3/ : 94.5...97.5
1000 s: (92.0...100.0)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm3/ : 51.0...53.0
1000 s: (49.0...55.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.40
Speed rpm : 1330...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 88.0...102.0
1000 s: (85.0...105.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 275
Rack travel in mm : 6.40...6.60
Del.quantity cm3/ : 20.0...24.0
1000 s: (17.5...26.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

Set start-of-delivery sensor at pre-stroke to 3.50...3.60 mm for cylinder 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 8,8 S 3
 Edition : 18.08.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 235
 Injection pump
 Pump designation : PES6MW100/32ORS1171
 EP type number : 0 413 406 156
 Governor
 Governor design. : RQV300...1300MW80-5
 Governor no. : 0 420 083 197

Customer-spec. information
 Customer : RVI

Engine : MIDS 060212B

1st version kW : 113.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 033

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10
 : (2.95...3.15)

Rack travel in mm : 9.00...12.00

J20

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 12.40...12.50

Del. quantity cm³/ : 8.6...8.8

100 s : (8.4...9.0)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.60...6.80

Del. quantity cm³/ : 1.3...1.7

100 s : (1.0...1.9)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1500

travel mm : 8.70...9.10

2nd speed rpm : 1350

travel mm : 7.60...7.80

3rd speed rpm : 500

travel mm : 2.80...3.40

4th speed rpm : 300

travel mm : 1.20...1.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del. quantity : 86.0...88.0

1000 : (84.0...90.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 60...68

Testing:

1st rack travel in: 11.40

Speed rpm : 1370...1380
2nd rack travel in: 4.00
Speed rpm : 1520...1550
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 10...18
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.7

Testing:

Speed rpm : 100
Minimum rack travel: 7.90
Speed rpm : 300
Rack travel in mm : 6.60...6.80

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.50...10.60

Measurement

Speed 1/min : 500

1st pressure hPa : 100
Rack travel in m: 10.90...11.00
2nd pressure hPa : 200
Rack travel in m: 11.80...12.10
3rd pressure hPa : 700
Rack travel in m: 12.40...12.50

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 900
Del.quantity cm³/ : 81.0...84.0
1000 s: (78.5...86.5)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 43.0...45.0
1000 s: (41.0...47.0)

BREAKAWAY

J21

1st version
1mm rack travel less than

full load rack tr: 11.40
Speed rpm : 1370...1380

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 90.0...110.0
1000 s: (87.0...113.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.60...6.80
Del.quantity cm³/ : 13.0...17.0
1000 s: (10.5...19.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

Set start-of-delivery sensor at pre-stroke to 3.50...3.60 mm for cylinder 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 E
Edition : 28.11.88
Replaces : 26.06.87
Test oil : ISO-4113

Combination no. : 0 403 466 107

Injection pump
Pump designation : PES6MW100/120RS1148
EP type number : 0 413 406 143
Governor
Governor design. : RSV400...900MW7A319-5
Governor no. : 0 420 085 082

Customer-spec. information
Customer : CUMMINS/US

Engine : 6 CTA-8.3 L

1st version kW : 196.9
Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.60...3.70
: (3.55...3.75)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 13.00...13.10

Del. quantity cm³/ : 18.3...18.5

100 s: (18.1...18.7)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.9...6.0

Del. quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del. quantity : 183.0...185.0

1000 : (181.5...187.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 47...55

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 12.00
Speed rpm : 940...950
2nd rack travel in: 4.00
Speed rpm : 965...990
4th rack travel in: 1000
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.9

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.90...6.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ : 179.0...183.0
1000 s: (177.0...185.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.00
Speed rpm : 940...950

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...145.0
1000 s: (122.0...148.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.90...6.00
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

Start-of-delivery mark 9° cam angle
after start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 N
Edition : 15.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 403 466 121

Injection pump
Pump designation : PES6MW100/120RS1184
EP type number : 0 413 406 171
Governor
Governor design. : RSV400...1300MW2A334
Governor no. : 0 420 085 122

Cust. part no. : 3280646

Customer-spec. information
Customer : CUMMINS

Engine : 6 BTAA 5.9

1st version kW : 157.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _ _ _

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Phasing :
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 10.90...11.00

Del. quantity cm³/ : 12.5...12.7

100 s: (12.3...12.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 400.0
Rack travel in mm : 6.8...7.0
Del. quantity cm³/ : 1.6...2.0
100 s: (1.3...2.2)
Spread cm³ : 0.3
100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1250
Aneroid pressure h: 800
Del. quantity : 125.0...127.0
1000 : (123.0...129.0)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 50...58

Setting point:
Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 9.90
Speed rpm : 1295...1305
2nd rack travel in: 4.00
Speed rpm : 1370...1400
4th rack travel in: 1450
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 6.9

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 6.80...7.00
Rack travel in mm : 2.00
Speed rpm : 590...650

SET IDLE AUXILIARY SPRING

Rack travel in mm : 4.00

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : -
Rack travel mm : 9.90...10.00

Measurement

Speed 1/min : 500

1st pressure hPa : 490
Rack travel in m: 10.20...10.30
2nd pressure hPa : 550
Rack travel in m: 10.40...10.70
3rd pressure hPa : 800
Rack travel in m: 10.90...11.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm3/ : 80.0...82.0
1000 s: (78.0...84.0)
Spread cm3 : 5.00
1000 s: (7.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1295...1305

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 135.0...145.0
1000 s: (132.0...148.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6.80...7.00
Del. quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: C.D.C. #3280646

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 4,0 A 23
 Edition : 01.07.88
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 474 003

Injection pump
 Pump designation : PES4MW100/72ORS1127
 EP type number : 0 413 404 103
 Governor
 Governor design. : RSV350...1300MWOA318
 -3
 Governor no. : 0 420 085 087

Customer-spec. information
 Customer : DB

Engine : OM364A

1st version kW : 85.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1280

 Rack travel in mm : 12.40...12.50

 Del. quantity cm³/ : 8.4...8.6

 100 s : (8.2...8.8)

 Spread cm³ : 0.3

 100 s : (0.6)

2nd speed rpm : 350.0
 Rack travel in mm : 7.1...7.2
 Del. quantity cm³/ : 0.9...1.3
 100 s : (0.7...1.5)
 Spread cm³ : 0.3
 100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1280
 Del. quantity : 84.0...86.0
 1000 : (82.0...88.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 53...61

Setting point:
 Speed rpm : 800
 Rack travel in mm : 0.6

Testing:
 1st rack travel in: 11.40
 Speed rpm : 1320...1330
 2nd rack travel in: 4.00
 Speed rpm : 1390...1420

4th rack travel in: 1480
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 7.1

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 7.10...7.20
Rack travel in mm : 2.00
Speed rpm : 470...530

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100
Rack travel in m: 12.40...12.60
2nd speed rpm : 750
Rack travel in m: 13.20...13.40
3rd speed rpm : 950
Rack travel in m: 12.70...12.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm3/ : 79.0...81.0
1000 s: (77.0...83.0)
Spread cm3 : 5.00
1000 s: (7.0)
Speed rpm : 950
Del.quantity cm3/ : 83.0...86.0
1000 s: (80.5...88.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.40
Speed rpm : 1320...1330

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 83.0...93.0
1000 s: (80.0...96.0)

LOW IDLE

J27

Speed rpm : 350
Rack travel in mm : 7.10...7.20
Del.quantity cm3/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : LIE 5,6 B
 Edition : 14.07.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 474 008
 Injection pump
 Pump designation : PES4MW100/72ORS1181
 EP type number : 0 413 404 107
 Governor
 Governor design. : RSV400...1000MW1A333
 Governor no. : 0 420 085 118

Customer-spec. information
 Customer : LIEBHERR

Engine : 914

1st version kW : 120.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 049

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 740 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10
 : (2.95...3.15)

Rack travel in mm : 9.00...12.00

J28

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 11.70...11.80

Del. quantity cm³/ : 14.6...14.8

100 s: (14.4...15.0)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.6...5.8

Del. quantity cm³/ : 1.4...1.8

100 s: (1.1...2.0)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 3.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del. quantity : 146.0...148.0

1000 : (144.0...150.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 46...54

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 10.70
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1070...1100
4th rack travel in: 1275
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.7

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.60...5.80
Rack travel in mm : 2.00
Speed rpm : 480...540

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/ : 145.5...148.5
1000 s: (143.0...151.0)
Spread cm3 : 3.50
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 10.70
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...140.0
1000 s: (127.0...143.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.60...5.80
Del.quantity cm3/ : 14.0...18.0
1000 s: (11.5...20.5)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

:

K01

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 50
Edition : 24.06.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 403 476 027
Injection pump
Pump designation : PES6MW100/72ORS1144
EP type number : 0 413 406 138
Governor
Governor design. : RSV350...1300MW1A316
-6
Governor no. : 0 420 085 098

Customer-spec. information
Customer : DB

Engine : OM366A

1st version kW : 125.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
: (3.65...3.85)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.70...10.80

Del. quantity cm3/ : 7.2...7.4

100 s: (7.0...7.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 7.0...7.6

Del. quantity cm3/ : 0.9...1.1

100 s: (0.7...1.3)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Del. quantity : 72.0...74.0

1000 : (70.0...76.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 54...62

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 9.70

Speed rpm : 1340...1345
2nd rack travel in: 4.00
Speed rpm : 1380...1393
3rd rack travel in: 4.00
Speed rpm : 1400...1430
4th rack travel in: 1450
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 12...20
Speed rpm : 350
Rack travel in mm : 7.00...7.60
Rack travel in mm : 2.00
Speed rpm : 445...505

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 10.70...10.80
2nd speed rpm : 700
Rack travel in m: 12.30...12.40
3rd speed rpm : 825
Rack travel in m: 11.90...12.10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del.quantity cm3/ : 69.0...71.0
1000 s: (67.0...73.0)
Spread cm3 : 5.00
1000 s: (7.0)
Speed rpm : 825
Del.quantity cm3/ : 73.0...75.0
1000 s: (71.0...77.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.70
Speed rpm : 1340...1345

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 78.0...88.0
1000 s: (75.0...91.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 7.00...7.60

K03

Del.quantity cm3/ : 9.0...11.0
1000 s: (7.0...13.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 5,7 A 17
Edition : 20.05.88
Replaces : 12.85
Test oil : ISO-4113

Combination no. : 0 403 476 028

Injection pump
Pump designation : PES6MW100/72ORS1125
EP type number : 0 413 406 119
Governor
Governor design. : RSV300...1300MWOA317
Governor no. : 0 420 085 045

Customer-spec. information
Customer : DB

Engine : OM 362 LA

1st version kW : 141.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.20...3.30
: (3.15...3.35)

Rack travel in mm : 9.00...12.00

K04

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1280

Rack travel in mm : 11.80...11.90

Del. quantity cm³/ : 9.6...9.8

100 s: (9.4...10.0)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.0

Del. quantity cm³/ : 1.1...1.5

100 s: (0.9...1.7)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1280

Aneroid pressure h: 900

Del. quantity : 96.0...98.0

1000 : (94.0...100.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 55...63

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 10.80

Speed rpm : 1330...1340

2nd rack travel in: 4.00

Speed rpm : 1400...1430

4th rack travel in: 1560
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 12...20
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.9

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 300
Rack travel in mm : 5.90...6.00

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 11.80...11.90

Measurement

Speed 1/min : 500

1st pressure hPa : 350
Rack travel in m: 10.50...10.70
2nd pressure hPa : 450
Rack travel in m: 11.40...11.60
3rd pressure hPa : -
Rack travel in m: 9.70...9.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 800
Del.quantity cm3/ : 97.0...99.0
1000 s: (95.0...101.0)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 46.0...48.0
1000 s: (44.0...50.0)

BREAKAWAY

1st version
1mm rack travel less than

K05

full load rack tr: 10.80
Speed rpm : 1330...1340

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 88.0...98.0
1000 s: (85.0...101.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...6.00
Del.quantity cm3/ : 11.0...15.0
1000 s: (9.0...17.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 45
Edition : 20.05.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 403 476 029

Injection pump
Pump designation : PES6MW100/72ORS1144
EP type number : 0 413 406 138
Governor
Governor design. : RSV350...1200MW1A316
-1
Governor no. : 0 420 085 048

Customer-spec. information
Customer : DB

Engine : OM366A

1st version kW : 110.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
: (3.65...3.85)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 9.80...9.90

Del. quantity cm³/ : 6.9...7.1

100 s: (6.7...7.3)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.4...7.0

Del. quantity cm³/ : 0.9...1.1

100 s: (0.7...1.3)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del. quantity : 69.0...71.0

1000 : (67.0...73.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 52...60

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 8.80

Speed rpm : 1240...1245
2nd rack travel in: 4.00
Speed rpm : 1280...1293
3rd rack travel in: 4.00
Speed rpm : 1300...1330
4th rack travel in: 1360
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 12...20
Rack travel in mm : 2.00
Speed rpm : 465...525

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1150
Rack travel in m: 9.90...10.10
2nd speed rpm : 750
Rack travel in m: 10.60...10.70
3rd speed rpm : 950
Rack travel in m: 10.30...10.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/ : 56.0...58.0
1000 s: (54.0...60.0)
Spread cm3 : 5.00
1000 s: (7.0)
Speed rpm : 900
Del.quantity cm3/ : 71.0...73.0
1000 s: (69.0...75.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.80
Speed rpm : 1240...1245

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 78.0...88.0
1000 s: (75.0...91.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.40...7.00
Del.quantity cm3/ : 9.0...11.0
1000 s: (7.0...13.0)

Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 44
 Edition : 20.05.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 476 036
 Injection pump
 Pump designation : PES6MW100/72ORS1129
 EP type number : 0 413 406 121
 Governor
 Governor design. : RSV350...1300MWOA317
 -1
 Governor no. : 0 420 085 051

Customer-spec. information
 Customer : DB

Engine : OM 366 LA

1st version kW : 150.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)

K08

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1280

Rack travel in mm : 11.50...11.60

Del. quantity cm³/ : 9.7...9.9

100 s: (9.5...10.1)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.5...5.7

Del. quantity cm³/ : 0.8...1.2

100 s: (0.6...1.4)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1280

Aneroid pressure h: 900

Del. quantity : 97.0...99.0

1000 : (95.0...101.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 56...64

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 10.50

Speed rpm : 1320...1330

2nd rack travel in: 4.00

Speed rpm : 1385...1415
4th rack travel in: 1450
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.6

Testing:

Speed rpm : 100
Minimum rack travel: 7.60
Speed rpm : 350
Rack travel in mm : 5.50...5.70

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 9.50...9.60

Measurement

Speed 1/min : 500

1st pressure hPa : 175
Rack travel in m: 10.00...10.20
2nd pressure hPa : 300
Rack travel in m: 10.80...11.00
3rd pressure hPa : 900
Rack travel in m: 11.50...11.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 750
Del.quantity cm³/ : 85.0...89.0
1000 s: (83.0...89.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 48.0...50.0
1000 s: (46.0...52.0)

BREAKAWAY

1st version

K09

1mm rack travel less than

full load rack tr: 10.50
Speed rpm : 1320...1330

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 88.0...98.0
1000 s: (85.0...101.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.50...5.70
Del.quantity cm³/ : 8.0...12.0
1000 s: (6.0...14.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 41
 Edition : 19.05.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 476 037
 Injection pump
 Pump designation : PES6MW100/72ORS1130
 EP type number : 0 413 406 122
 Governor
 Governor design. : RSV350...1300MWOA318
 Governor no. : 0 420 085 052

Customer-spec. information
 Customer : DB

Engine : OM 366 A

1st version kW : 125.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Rack travel in mm : 9.00...12.00

K10

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1280

Rack travel in mm : 11.00...11.20

Del. quantity cm³/ : 7.7...7.9

100 s: (7.5...8.1)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 750.0

Rack travel in mm : 11.7...11.8

Del. quantity cm³/ : 0.9...1.3

100 s: (0.7...1.5)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1280

Del. quantity : 77.0...79.0

1000 : (75.0...81.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 55...63

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 10.00

Speed rpm : 1320...1330

2nd rack travel in: 4.00

Speed rpm : 1380...1410

4th rack travel in: 1560

Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever

position degrees: 25...33

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 8.0

Testing:

Speed rpm : 100

Minimum rack travel: 19.00

Speed rpm : 350

Rack travel in mm : 8.00...8.10

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1280

Rack travel in m: 11.00...11.20

2nd speed rpm : 750

Rack travel in m: 11.70...11.80

3rd speed rpm : 825

Rack travel in m: 11.40...11.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750

Del. quantity cm³/ : 72.0...74.0

1000 s: (70.0...76.0)

Spread cm³ : 5.00

1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.00

Speed rpm : 1320...1330

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm³/ : 78.0...88.0

1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 350

Rack travel in mm : 8.00...8.10

Del. quantity cm³/ : 9.0...13.0

1000 s: (7.0...15.0)

Spread cm³ : 3.50

1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 46
 Edition : 08.06.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 476 055
 Injection pump
 Pump designation : PES6MW100/72ORS1144
 EP type number : 0 413 406 138
 Governor
 Governor design. : RSV350...1200MW1A316
 -8
 Governor no. : 0 420 085 097

Customer-spec. information
 Customer : DB

Engine : OM366A

1st version kW : 92.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 9.60...9.70

Del. quantity cm³/ : 6.0...6.2

100 s: (5.8...6.4)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.3...6.9

Del. quantity cm³/ : 0.9...1.1

100 s: (0.6...1.4)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 15.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del. quantity : 60.0...62.0

1000 : (58.0...64.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 58...66

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 8.60

Speed rpm : 1240...1245
2nd rack travel in: 4.00
Speed rpm : 1263...1276
3rd rack travel in: 4.00
Speed rpm : 1290...1320
4th rack travel in: 1450
Speed rpm : 0.30...1.70
5th rack travel in: 1240...1255
Speed rpm : 8.60

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 6.6

Testing:

Speed rpm : 100

Minimum rack trave: 19.00

Speed rpm : 350

Rack travel in mm : 6.30...6.90

Rack travel in mm : 2.00

Speed rpm : 415...475

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 9.60...9.70

2nd speed rpm : 800

Rack travel in m: 10.50...10.60

3rd speed rpm : 950

Rack travel in m: 9.90...10.10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800

Del.quantity cm3/ : 59.0...61.0

1000 s: (57.0...63.0)

Spread cm3 : 5.00

1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.60

Speed rpm : 1240...1245

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 78.0...88.0

1000 s: (75.0...91.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

K13

Speed rpm : 350
Rack travel in mm : 6.30...6.90
Del.quantity cm3/ : 9.0...11.0
1000 s: (6.0...14.0)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 18
 Edition : 20.05.88
 Replaces : 14.11.86
 Test oil : ISO-4113
 Combination no. : 0 403 476 057
 Injection pump
 Pump designation : PES6MW100/72ORS1129-
 2
 EP type number : 0 413 406 140
 Governor
 Governor design. : RSV300...1300MWOA324
 Governor no. : 0 420 085 079

Customer-spec. information
 Customer : DB

Engine : OM 366 LA

1st version kW : 150.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1280

Rack travel in mm : 11.90...12.00

Del. quantity cm³/ : 9.3...9.5

100 s: (9.1...9.7)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del. quantity cm³/ : 0.9...1.3

100 s: (0.7...1.5)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1280

Aneroid pressure h: 900

Del. quantity : 93.0...95.0

1000 : (91.0...97.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 56...64

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 10.90

Speed rpm : 1320...1330

2nd rack travel in: 4.00

Speed rpm : 1385...1415
4th rack travel in: 1450
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack travel: 7.60
Speed rpm : 300
Rack travel in mm : 5.90...6.10

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 9.90...10.00

Measurement

Speed 1/min : 500

1st pressure hPa : 175
Rack travel in m: 10.40...10.60
2nd pressure hPa : 300
Rack travel in m: 11.20...11.40
3rd pressure hPa : 900
Rack travel in m: 11.90...12.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 750
Del. quantity cm3/ : 83.0...87.0
1000 s: (81.0...89.0)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm3/ : 46.0...48.0
1000 s: (44.0...50.0)

BREAKAWAY

1st version

K15

1mm rack travel less than

full load rack tr: 10.90
Speed rpm : 1320...1330

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 88.0...98.0
1000 s: (85.0...101.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...6.10
Del. quantity cm3/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 38
 Edition : 30.05.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 476 059
 Injection pump
 Pump designation : PES6MW100/72QRS1130
 EP type number : 0 413 406 122
 Governor
 Governor design. : RSV575...1250MWOA325
 Governor no. : 0 420 085 083

Customer-spec. information
 Customer : DB

Engine : OM 366 A

1st version kW : 125.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1230

Rack travel in mm : 10.90...11.00

Del. quantity cm³/ : 7.8...8.0

100 s: (7.6...8.2)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 575.0

Rack travel in mm : 5.6...5.7

Del. quantity cm³/ : 0.9...1.3

100 s: (0.7...1.5)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1230

Del. quantity : 78.0...80.0

1000 : (76.0...82.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 46...54

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 9.90

Speed rpm : 1270...1280

2nd rack travel in: 4.00

Speed rpm : 1300...1330

4th rack travel in: 1350

Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever

position degrees: 24...32

Setting point w/out bumper spring

Speed rpm : 575

Rack travel in mm : 5.6

Testing:

Speed rpm : 100

Minimum rack trave: 19.00

Speed rpm : 575

Rack travel in mm : 5.60...5.70

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600

Del.quantity cm3/ : 55.0...59.0

1000 s: (53.0...61.0)

Spread cm3 : 5.00

1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.90

Speed rpm : 1270...1280

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 78.0...88.0

1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 575

Rack travel in mm : 5.60...5.70

Del.quantity cm3/ : 9.0...13.0

1000 s: (7.0...15.0)

Spread cm3 : 3.50

1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,2 N
 Edition : 18.08.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 476 068
 Injection pump
 Pump designation : PES6MW100/320RS1153-1
 EP type number : 0 413 406 162
 Governor
 Governor design. : RSV300...750MW1A802
 Governor no. : 0 420 085 113

Customer-spec. information
 Customer : MAN

Engine : D0826LE20

1st version kW : 116.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10
 : (2.95...3.15)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.30...12.40

Del. quantity cm³/ : 14.3...14.5

100 s : (14.1...14.7)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.9...7.1

Del. quantity cm³/ : 3.3...3.7

100 s : (3.0...3.9)

Spread cm³ : 0.3

100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del. quantity : 143.0...145.0

1000 : (141.0...147.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 30...38

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 11.30

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 777...790

4th rack travel in: 950
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 13...21
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.0
Speed rpm : 300
Rack travel in mm : 6.90...7.10
Rack travel in mm : 2.00
Speed rpm : 400...460

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.30
Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...140.0
1000 s: (127.0...143.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.90...7.10
Del.quantity cm³/ : 33.0...37.0
1000 s: (30.5...39.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 68
 Edition : 14.07.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 476 071
 Injection pump
 Pump designation : PES6MW100/72ORS1130-2
 EP type number : 0 413 406 164
 Governor
 Governor design. : RSV350...1300MWOA318-6
 Governor no. : 0 420 085 117

Customer-spec. information
 Customer : DB-NKW

Engine : OM 366 A

1st version kW : 125.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1280

 Rack travel in mm : 11.00...11.10

 Del. quantity cm³/ : 7.7...7.9

 100 s: (7.5...8.1)

 Spread cm³ : 0.3

 100 s: (0.6)

2nd speed rpm : 350.0
 Rack travel in mm : 7.4...7.6
 Del. quantity cm³/ : 0.9...1.3
 100 s: (0.7...1.5)
 Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1280
 Del. quantity : 77.0...79.0
 1000 : (75.0...81.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 46...54

Setting point:
 Speed rpm : 800
 Rack travel in mm : 0.6

Testing:

1st rack travel in: 10.00
Speed rpm : 1320...1330
2nd rack travel in: 4.00
Speed rpm : 1380...1410
4th rack travel in: 1560
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 7.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 7.40...7.60
Rack travel in mm : 2.00
Speed rpm : 400...460

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1280
Rack travel in m: 11.00...11.10
2nd speed rpm : 750
Rack travel in m: 11.70...11.80
3rd speed rpm : 825
Rack travel in m: 11.40...11.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm3/ : 71.5...74.5
1000 s: (69.0...77.0)
Spread cm3 : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.00
Speed rpm : 1320...1330

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 78.0...88.0
1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 7.40...7.60
Del.quantity cm3/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 75
 Edition : 15.08.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 476 075
 Injection pump
 Pump designation : PES6MW100/72ORS1130
 EP type number : 0 413 406 122
 Governor
 Governor design. : RSV350...750MWOA336-
 1
 Governor no. : 0 420 085 124

Customer-spec. information
 Customer : DB-NKW

Engine : OM366A

1st version kW : 84.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.00...13.10

Del. quantity cm³/ : 8.0...8.2

100 s: (7.8...8.4)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 7.4...7.6

Del. quantity cm³/ : 0.9...1.3

100 s: (0.7...1.5)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del. quantity : 80.0...82.0

1000 : (78.0...84.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 24...32

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 12.00

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 775...788

4th rack travel in: 800
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 11...19
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 7.5

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 7.40...7.60

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 88.0...98.0
1000 s: (85.0...101.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 7.40...7.60
Del.quantity cm3/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

When setting the governor, the
throttle screw of damper 1 must be
open 1 turn.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 F
 Edition : 15.08.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 476 076
 Injection pump
 Pump designation : PES6MW100/72ORS1120-1
 EP type number : 0 413 406 172
 Governor
 Governor design. : RSV350...1300MWOA2-1
 Governor no. : 0 420 085 125

Customer-spec. information
 Customer : DB-NKW

Engine : OM 366 LA

1st version kW : 142.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 13.00...13.10

Del. quantity cm3/ : 9.4...9.6

100 s: (9.2...9.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.2...6.9

Del. quantity cm3/ : 1.0...1.2

100 s: (0.6...1.5)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del. quantity : 94.0...96.0

1000 : (92.0...98.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 56...64

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 12.00

Speed rpm : 1340...1345

2nd rack travel in: 4.00

Speed rpm : 1427...1440
3rd rack travel in: 4.00
Speed rpm : 1460...1490
4th rack travel in: 1600
Speed rpm : 0.30...1.70
5th rack travel in: 1335...1350
Speed rpm : 12.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 6.20...6.90
Rack travel in mm : 2.00
Speed rpm : 420...480

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : -
Rack travel mm : 11.60...11.70

Measurement

Speed 1/min : 500

1st pressure hPa : 300
Rack travel in m: 12.10...12.20
2nd pressure hPa : 360
Rack travel in m: 12.60...12.90
3rd pressure hPa : 700
Rack travel in m: 13.00...13.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 800
Del.quantity cm³/ : 86.0...89.0
1000 s: (83.5...91.5)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 49.0...51.0
1000 s: (47.0...53.0)

BREAKAWAY

1st version

K25

1mm rack travel less than

full load rack tr: 12.00
Speed rpm : 1340...1345

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 85.0...95.0
1000 s: (92.0...98.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.20...6.90
Del.quantity cm³/ : 10.0...12.0
1000 s: (6.5...15.5)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

:

Test hydr. locking device for starting
with 500...1000 hPa air pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 76
 Edition : 15.08.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 476 077
 Injection pump
 Pump designation : PES6MW100/72ORS1144
 EP type number : 0 413 406 138
 Governor
 Governor design. : RSV350...1300MWOA3
 Governor no. : 0 420 085 126

Customer-spec. information
 Customer : DB-NKW

Engine : OM 366 LA

1st version kW : 127.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.65...3.75
 : (3.60...3.80)

Rack travel in mm : 9.00...12.00

K26

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.80...11.90

Del.quantity cm³/ : 8.5...8.7

100 s : (8.3...8.9)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.2...6.9

Del.quantity cm³/ : 1.0...1.2

100 s : (0.6...1.5)

Spread cm³ : 0.3

100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Del.quantity : 85.0...87.0

1000 : (83.0...89.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 49...57

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 12.00

Speed rpm : 1340...1345

2nd rack travel in: 4.00

Speed rpm : 1397...1410

3rd rack travel in: 4.00

Speed rpm : 1430...1460
4th rack travel in: 1550
Speed rpm : 0.30...1.70
5th rack travel in: 1335...1350
Speed rpm : 10.80

Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

:

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 6.5

Testing:

Speed rpm : 100

Minimum rack trave: 19.00

Speed rpm : 350

Rack travel in mm : 6.20...6.90

Rack travel in mm : 2.00

Speed rpm : 440...500

TORQUE CONTROL

Dimension a mm : 0.30

Torque control curve - 1st version

1st speed rpm : 1300

Rack travel in m: 11.80...11.90

2nd speed rpm : 800

Rack travel in m: 12.10...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800

Del.quantity cm³/ : 75.0...78.0

1000 s: (72.5...80.5)

Spread cm³ : 5.00

1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.00

Speed rpm : 1340...1345

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 80.0...90.0

1000 s: (77.0...93.0)

LOW IDLE

Speed rpm : 350

Rack travel in mm : 6.20...6.90

Del.quantity cm³/ : 10.0...12.0

1000 s: (6.5...15.5)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 74
 Edition : 15.08.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 476 078
 Injection pump
 Pump designation : PES6MW100/72ORS1129
 EP type number : 0 413 406 121
 Governor
 Governor design. : RSV350...750MWOA336
 Governor no. : 0 420 085 127

Customer-spec. information
 Customer : DB-NKW

Engine : OM 366 LA

1st version kW : 94.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)

Rack travel in mm : 9.00...12.00

K28

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.50...12.60

Del.quantity cm³/ : 8.5...8.7

100 s: (8.3...8.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.0...6.2

Del.quantity cm³/ : 0.9...1.3

100 s: (0.7...1.5)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 85.0...87.0

1000 : (83.0...89.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 24...32

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 11.50

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 775...788

4th rack travel in: 820

Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever

position degrees: 10...18

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 6.1

Testing:

Speed rpm : 100

Minimum rack trave: 19.00

Speed rpm : 350

Rack travel in mm : 6.00...6.20

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50

Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 88.0...98.0

1000 s: (85.0...101.0)

LOW IDLE

Speed rpm : 350

Rack travel in mm : 6.00...6.20

Del.quantity cm3/ : 9.0...13.0

1000 s: (7.0...15.0)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

:

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 8.60...8.70

Testing:

Speed rpm : 220

Minimum rack trave: 10.40

Speed rpm : 300

Rack travel in mm : 8.60...8.70

Rack travel in mm : 2.00

Speed rpm : 430...470

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MTU 47,6 c
 Edition : 31.8.89
 Replaces : 23.3.87
 Test oil : ISO-4113
 Combination no. : 0 406 030 999
 Injection pump
 Pump designation : PEV12ZWM160/12ORS
 1030/11
 EP type number : 0 416 060 999
 Governor
 Governor design. : RQU425...600/1300ZWA
 62-1
 Governor no. : 0 422 405 016

Customer-spec. information
 Customer : MTU

Engine : MB 873

TEST BENCH REQUIREMENTS

Test oil
 Outlet temp, °C : 42...45

Overflow valve : -

Inlet press., bar : 3.0

Overflow
 quantity min. 1/h: 600...720

Test nozzle holder
 assembly : 0 681 443 022

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 069

Outside diameter
 x Wall thickness
 x Length mm : 8,00X2,00X1500

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2.50...2.60
 : (2.45...2.65)

Rack travel in mm : 12.00
 Firing order : 12-9-3-6-8-11-1-4-10
 -7-5-2

Phasing : 0-15-60-75-120-135-
 180-195-240-255-300-
 315

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 9.00

Del. quantity cm3/ : 24.5...26.3 *
 100 s: (24.2...26.6)

Spread cm3 : 1.8
 100 s: (2.7)

2nd speed rpm : 425
 Rack travel in mm : 6.80
 Del. quantity cm3/ : 7.9...8.7
 100 s: (-)
 Spread cm3 : 1.6
 100 s: (-)

1st speed rpm : 1300
 Rack travel in mm : 9.00
 Del. quantity cm3/ : 22.2...24.0**
 100 s: (21.9...24.3)
 Spread cm3 : 1.8
 100 s: (2.7)
 2nd speed rpm : 425
 Rack travel in mm : 6.80

GUIDE SLEEVE POSITION

Control-lever position
 Degree: 45...55
 Speed rpm : 800
 Rack travel in mm : 12.00...12.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1300
 Del. quantity : 375.0...379.0 *
 1000 : (372.0...382.0)
 Spread cm3 : 8.0
 1000 : (12.0)
 2nd version
 Speed rpm : 1300
 Del. quantity cm3/ : 357.0...361.0**
 1000 s: (354.0...361.0)

Spread cm³ : 8.0
1000 s: (12.0)

RATED SPEED

1st version
Control lever
position degrees: 48...54

Setting point:
Speed rpm : 1300
Rack travel in mm : 13.8

Testing:
1st rack travel in: 12.80
Speed rpm : 1325...1340
2nd rack travel in: 4.00
Speed rpm : 1420...1460
4th rack travel in: 1470...1550
Speed rpm : <0.01

SET IDLE CONTROL LEVER POSITION

Speed rpm : 425
Rack travel in mm : 6.80
Control lever
position degrees: 15...21

LOW IDLE 1
Speed rpm : 425
Rack travel in mm : 6.70...6..90

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.80
Speed rpm : 1325...1340

INTERMEDIATE RATED SPEED

Control lever
position degrees: 28...34
Rack travel in mm : 6.50
Speed rpm : 600

Remarks:
* = Bank A = cyl. 1-3-5-8-10-12.

** = Bank B = cyl. 2-4-6-7-9-11.

Note mounting and test instructions
KH/VSK 40 JP 1.

Set with adjusting gauge KDEP 1533.

LOS

Inlet pressure 3 bar with overflow
quantity 10...12 l/min (measured at
return).

Instead of overflow valve, connect a
hand valve of minimum nominal size
1/2" into the return.
Overflow quantity as well as inlet
pressure must be observed precisely.
Note further that the calibrating-
oil temperature 42^o...45^o C must be
measured at the return.

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MTU 37,4 C
Edition : 20.10.87
Replaces : -
Test oil : ISO-4113

Combination no. : 0 406 039 111

Injection pump
Pump designation : PE10ZWM160/120ZWA68R
EP type number : 0 416 069 001
Governor
Governor design. : RQU425/1200ZWA68R
Governor no. : 0 422 407 036

Customer-spec. information
Customer : MTU

Engine : MB 838 KA

1st version kW : 100
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 40...45

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 443 022

Opening
pressure, bar : 172...175

Test lines : 1 680 750 016

Outside diameter
x Wall thickness
x Length mm : 8,00x2,00x1500

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.50...2.60
: (2.45...2.65)
Rack travel in mm : 12.00
Firing order : 10-3-4-5-6-7-8-1-2-9

L06

Phasing : 0-27-72-99-144-171-
216-243-288-315
Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 15.00

Del. quantity cm³/ : 51.5...53.5

100 s: (51.0...54.0)

Spread cm³ : 1.5

100 s: (2.2)

2nd speed rpm : 1000
Rack travel in mm : 9.00
Del. quantity cm³/ : 26.5...28.5
100 s: (26.0...29.0)
Spread cm³ : 1.5
100 s: (2.2)
3rd speed rpm : 300
Rack travel in mm : 9.00
Del. quantity cm³/ : 15.0...18.0
100 s: (14.5...18.5)
Spread cm³ : 2.0
100 s: (3.0)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1200
Rack travel in mm : 18.00...18.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1200
Del. quantity : 505.0...515.0
1000 : (500.0...520.0)
Spread cm³ : 15.0
1000 : (22.0)

RATED SPEED

1st version
Control lever
position degrees: 52...58

Testing:
1st rack travel in: 15.00
Speed rpm : 1200
2nd rack travel in: 14.00
Speed rpm : 1225...1240

3rd rack travel in: 4.00
Speed rpm : 1312...1352
4th rack travel in: 1339...1389
Speed rpm : 0.01

LOW IDLE 1
Control lever
position degrees: 20...26
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 6.80

Testing:
Speed rpm : 200
Minimum rack trave: 18.00
Speed rpm : 300
Rack travel in mm : 12.60...16.60
Rack travel in mm : 6.80
Speed rpm : 425
Speed rpm : 1275
Maximum rack trave: 0.01
Rack travel in mm : 1.50
Speed rpm : 600...1200

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 14.00
Speed rpm : 1225...1240

HIGH IDLE

1st version
Rack travel in mm : 4.00
Spread cm³ : 12.0
1000 s: (-)

LOW IDLE

Speed rpm : 425
Rack travel in mm : 6.80
Del.quantity cm³/ : 104.0...111.0
1000 s: (-)
Spread cm³ : 10.0
1000 s: (-)

Remarks:

:

Set idle stop at 425 min -1 to a
control-rod travel of 6.8 mm.

Limit shutoff stop screw to 1.0 mm.

APPLICATION

L07

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : YDA 7,3 b
Edition : 09.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 9 400 030 258

Injection pump
Pump designation : PES6A80C410/3LS2400Z
Governor
Governor design. : RSV200...900A1B682L

Customer-spec. information
Customer : RUSTON & HORNSBY

Engine : 6 YDA MK II

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6,00X1,50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del.quantity cm³/ : 5,7...6,2

100 s : (-)

Spread cm³ : 0,3

100 s : (-)

2nd speed rpm : 200
Rack travel in mm : 6,00
Del.quantity cm³/ : 1,4...2,3
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 750
Del.quantity : 36.5...37.5 *
1000 : (36.0...38.0)
2nd version
Speed rpm : 750
Del.quantity cm³/ : 37.5...38.5 **
1000 s : (37.0...39.0)

RATED SPEED

1st version
Control lever
position degrees: 42...50

Testing:
1st rack travel in: 9,30
Speed rpm : 930...940
2nd rack travel in: 5,50
Speed rpm : 960...990
4th rack travel in: 1100
Speed rpm : 0,30...1,70

LOW IDLE 1
Control lever
position degrees: 14...22
Setting point w/out bumper spring
Speed rpm : 200
Rack travel in mm : 6,00

Testing:

Speed rpm : 100
Minimum rack trave: 19,00
Speed rpm : 300
Rack travel in mm : 6.40...6.60
Rack travel in mm : 2,00
Speed rpm : 425...475

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 900
Del.quantity cm3/ : 36.5...38.5 *
1000 s: (36.0...38.0)

2nd version

Speed rpm : 900
Del.quantity cm3/ : 37.5...38.5 **
1000 s: (37.0...39.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 930...940

HIGH IDLE

1st version

Speed rpm : 975
Rack travel in mm : 5,50

Remarks:

: * = BX
: ** = BY

APPLICATION

Navy

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : YDA 7,3 b 1
 Edition : 09.08.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 030 258
 Injection pump
 Pump designation : PES6A80D410/3LS2400Z
 Governor
 Governor design. : RSV200...900A1B682L

Customer-spec. information
 Customer : KIRLOSKAR

Engine : 6 YDA MK II

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.5

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6,00X1,50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 9,00
 Del.quantity cm3/ : 5,7...6,2
 100 s: (-)
 Spread cm3 : 0,3
 100 s: (-)
 2nd speed rpm : 200
 Rack travel in mm : 6,00
 Del.quantity cm3/ : 1,4...2,3
 100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0,30...0,70
 Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 750
 Del.quantity : 36.5...37.5 *
 1000 : (36.0...38.0)
 2nd version
 Speed rpm : 750
 Del.quantity cm3/ : 37.5...38.5 **
 1000 s: (37.0...39.0)

RATED SPEED

1st version
 Control lever
 position degrees: 42...50

Testing:
 1st rack travel in: 9,30
 Speed rpm : 930...940
 2nd rack travel in: 5,50
 Speed rpm : 960...990
 4th rack travel in: 1100
 Speed rpm : 0,30...1,70

LOW IDLE 1

Control lever
 position degrees: 14...22
 Setting point w/out bumper spring
 Speed rpm : 200
 Rack travel in mm : 6,00

Testing:

Speed rpm : 100
Minimum rack trave: 19,00
Speed rpm : 300
Rack travel in mm : 6.40...6.60
Rack travel in mm : 2,00
Speed rpm : 425...475

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 900
Del.quantity cm3/ : 36.5...37.5 *
1000 s: (36.0...38.0)

2nd version

Speed rpm : 900
Del.quantity cm3/ : 37.5...38.5 **
1000 s: (37.0...39.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 930...940

HIGH IDLE

1st version

Speed rpm : 975
Rack travel in mm : 5,50

Remarks:

: * = BX
: ** = BY

APPLICATION

Navy

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KIR 1,9 c
Edition : 28.07.89
Replaces : -
Test oil : ISO-4113
Combination no. : 9 400 030 296
Injection pump
Pump designation : PES2A80D320RS2490
Governor
Governor design. : RSV250...1100A4B784D
L

Customer-spec. information
Customer : KIRLOSKAR

Engine : RB 2

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Inlet press., bar : 1.00

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-2

Phasing : 0-90
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 4,15...4,55

L12

100 s: (-)

Spread cm³ : 0,3

100 s: (-)

2nd speed rpm : 200
Rack travel in mm : 9,00
Del. quantity cm³/ : 2,35...3,35
100 s: (-)

GUIDE SLEEVE POSITION
Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70
Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1080
Del. quantity : 56,1...58,1
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 46...54

Testing:
1st rack travel in: 16.00
Speed rpm : 890...910
2nd rack travel in: 11.60
Speed rpm : 920...940
3rd rack travel in: 5.70...5.90
Speed rpm : 960
4th rack travel in: 1000
Speed rpm : 2.00...2.40
5th rack travel in: 1100
Speed rpm : 0.30...1.00

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6.00

Testing:
Speed rpm : 100
Minimum rack travel: 19,00
Speed rpm : 150
Rack travel in mm : 11,00...21,00
Rack travel in mm : 6,00
Speed rpm : 230...270

Speed rpm : 600
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1080

Rack travel in m: 9,00

2nd speed rpm : 750

Rack travel in m: 10,10...10,50

3rd speed rpm : 500

Rack travel in m: 11,00...11,40

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100

Rack travel in mm : 14,00

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KIR 1 a
Edition : 28.07.89
Replaces : -
Test oil : ISO-4113
Combination no. : 9 400 030 297
Injection pump
Pump designation : PES6A80D32ORS2493
Governor
Governor design. : RSV250...1100A4B784D
L

Customer-spec. information
Customer : KIRLOSKAR (MICO)

Engine : RB 6

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Inlet press., bar : 1.0
Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

L14

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm3/ : 4,15...4,55

Spread cm3 : 0,3

100 s : (-)

2nd speed rpm : 200

Rack travel in mm : 9,00

Del. quantity cm3/ : 2,35...3,35

100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1080

Del. quantity : 56,1...58,1

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 46...54

Testing:

1st rack travel in: 8,00

Speed rpm : 1115...1125

2nd rack travel in: 2,20

Speed rpm : 985...1015

4th rack travel in: 1100

Speed rpm : 0,30...1,00

LOW IDLE 1

Control lever

position degrees: 18...26

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 6,00

Testing:

Speed rpm : 100

Minimum rack trave: 19,00

Speed rpm : 250

Rack travel in mm : 5,80...6,20

Speed rpm : 600

Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1080

Rack travel in m: 9,00

2nd speed rpm : 750

Rack travel in m: 10,10...10,50

3rd speed rpm : 500

Rack travel in m: 11,00...11,40

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00

STARTING FUEL DELIVERY

Speed rpm : 100

Rack travel in mm : 14,00

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KIR 3,9 c
Edition : 31.07.89
Replaces : -
Test oil : ISO-4113

Combination no. : 9 400 030 299

Injection pump
Pump designation : PES4A800320RS2492
Governor
Governor design. : RSV250...1100A4B784D
L

Customer-spec. information
Customer : KIRLOSKAR

Engine : RB 4

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Inlet press., bar : 1.0

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-3-4-2

Phasing : 0-90-180-270
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

L16

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm3/ : 4,15...4,55

100 s : (-)

Spread cm3 : 0,3

100 s : (-)

2nd speed rpm : 200

Rack travel in mm : 9,00

Del. quantity cm3/ : 2,35...3,35

100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1080

Del. quantity : 56,1...58,1

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 46...54

Testing:

1st rack travel in: 16.00

Speed rpm : 890...910

2nd rack travel in: 11.60

Speed rpm : 920...940

3rd rack travel in: 5.80

Speed rpm : 950...970

4th rack travel in: 1000

Speed rpm : 2.00...2.40

5th rack travel in: 1100

Speed rpm : 0.30...1.00

LOW IDLE 1

Control lever

position degrees: 18...26

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 6,00

Testing:

Speed rpm : 100
Minimum rack trave: 19,00
Speed rpm : 250
Rack travel in mm : 5,80...6,20
Speed rpm : 600
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1080
Rack travel in m: 9,00
2nd speed rpm : 750
Rack travel in m: 10,10...10,50
3rd speed rpm : 500
Rack travel in m: 11,00...11,40

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: ?
Speed rpm : 1115...1125

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 14,00

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : YDA 3,7 a
 Edition : 09.08.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 030 314
 Injection pump
 Pump designation : PES3A80D410/3LS2428Z
 Governor
 Governor design. : RSV200...900A/B682L

Customer-spec. information
 Customer : RUSTON & HORNSBY

Engine : 3 YDA MK 2

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.5

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6,00x1,50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-2-3

Phasing : 0-120-240
 Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 9,00
 Del.quantity cm3/ : 5,7...6,2
 100 s : (-)
 Spread cm3 : 0,3
 100 s : (-)
 2nd speed rpm : 200
 Rack travel in mm : 6,00
 Del.quantity cm3/ : 1,4...2,3
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 900
 Del.quantity : 73,0...75,0
 1000 : (72,0...76,0)

RATED SPEED

1st version
 Control lever
 position degrees: 42...50

Testing:
 1st rack travel in: 9,30
 Speed rpm : 930...940
 2nd rack travel in: 5,50
 Speed rpm : 965...995
 4th rack travel in: 1100
 Speed rpm : 0,30...1,70

LOW IDLE 1

Control lever
 position degrees: 16...24
 Setting point w/out bumper spring
 Speed rpm : 200
 Rack travel in mm : 6,00

Testing:
 Speed rpm : 100
 Minimum rack trave: 19,00

Speed rpm : 200
Rack travel in mm : 5,80...6,20
Rack travel in mm : 2,00
Speed rpm : 425...475

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 930...940

HIGH IDLE

1st version
Speed rpm : <960
Rack travel in mm : 5,50

Remarks:

APPLICATION

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : YDA 4,9 c
Edition : 09.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 9 400 030 315

Injection pump
Pump designation : PES4A80D410/3LS2404Z
Governor
Governor design. : RSV200...900A/9682L

Customer-spec. information
Customer : RUSTON & HORNSBY

Engine : 4 YDA MK 2

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6,00x1,50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-3-4-2

Phasing : 0-90-180-270
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del.quantity cm3/ : 5,7...6,2

100 s : (-)

Spread cm3 : 0,3

100 s : (-)

2nd speed rpm : 200
Rack travel in mm : 6,00
Del.quantity cm3/ : 1,4...2,3
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 900
Del.quantity : 73,0...75,0
1000 : (72,0...76,0)

RATED SPEED

1st version
Control lever
position degrees: 42...50

Testing:
1st rack travel in: 9,30
Speed rpm : 930...940
2nd rack travel in: 5,50
Speed rpm : 965...995
4th rack travel in: 1100
Speed rpm : 0,30...1,70

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 200
Rack travel in mm : 6,00

Testing:
Speed rpm : 100
Minimum rack trave: 19,00

Speed rpm : 200
Rack travel in mm : 5,80...6,20
Rack travel in mm : 2,00
Speed rpm : 425...475

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 930...940

HIGH IDLE

1st version
Speed rpm : <960
Rack travel in mm : 5,50

Remarks:

APPLICATION

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KIR 1 b
Edition : 01.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 9 400 030 318

Injection pump
Pump designation : PES4A65D32ORS1323
Governor
Governor design. : RSV300...1750A0B2016
R

Customer-spec. information
Customer : KIRLOSKAR (MICO)

Engine : RE 4

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Inlet press., bar : 1.0

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Prestroke mm : 1,90...2,00
: (1,85...2,05)
Rack travel in mm : 9,00...12,00
Firing order : 1-3-4-2

Phasing : 0-90-180-270
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

L22

1st speed rpm : 1000

Rack travel in mm : 12,00

Del. quantity cm³/ : 5,1...6,1

100 s: (-)

Spread cm³ : 0,3

100 s: (-)

2nd speed rpm : 200

Rack travel in mm : 6,00

Del. quantity cm³/ : 0,85...1,65

100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del. quantity : 32,0...34,0

1000 : (31,0...35,0)

RATED SPEED

1st version

Control lever

position degrees: 66...74

Testing:

1st rack travel in: 11,00

Speed rpm : 1780...1790

2nd rack travel in: 7,00

Speed rpm : 2085...2115

4th rack travel in: 2250

Speed rpm : 0,30...1,00

LOW IDLE 1

Control lever

position degrees: 13...21

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6,00

Testing:

Speed rpm : 120

Minimum rack travel: 19,00

Speed rpm : 300

Rack travel in mm : 5,80...6,20

Speed rpm : 650
Maximum rack trave: 1,00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1750
Del.quantity cm3/ : 31,4...41,4
1000 s: (36,0...42,0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11,00
Speed rpm : 1780...1790

HIGH IDLE

1st version

Speed rpm : 1810
Del.quantity cm3/ : 4,5
1000 s: (-)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KIR 1,9 b
Edition : 09.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 9 400 030 320

Injection pump
Pump designation : PES2A85D32ORS2528
Governor
Governor design. : RSV250...900A1B2015R

Customer-spec. information
Customer : KIRLOSKAR

Engine : RDA 2

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _ _ _

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-2

Phasing : 0-90
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 4,0...4,6

100 s : (-)

Spread cm³ : 0,4

100 s : (-)

2nd speed rpm : 200
Rack travel in mm : 6,00
Del. quantity cm³/ : 1,2...2,2
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 900
Del. quantity : 57,4...58,4
1000 : (57,0...62,0)

RATED SPEED

1st version
Control lever
position degrees: 46...54

Testing:
1st rack travel in: 7.80
Speed rpm : 940...960
2nd rack travel in: 3.10
Speed rpm : 1005...1035
4th rack travel in: 1150
Speed rpm : 0.30...1.00

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 200
Rack travel in mm : 6,00

Testing:
Speed rpm : 100
Minimum rack trave: 19,00

Speed rpm : 200
Rack travel in mm : 5,80...6,20
Rack travel in mm : 2,10
Speed rpm : 390...410
Speed rpm : 550
Maximum rack trave: 1,00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 915...925

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 12,50...13,00

HIGH IDLE

1st version
Speed rpm : 950
Rack travel in mm : 4,00

Remarks:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KIR 2,9 b
Edition : 09.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 9 400 030 321

Injection pump
Pump designation : PES3A85D32ORS2529
Governor
Governor design. : RSV250...900A1B2015R

Customer-spec. information
Customer : KIRLOSKAR

Engine : RDA 3

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-3-2

Phasing : 0-120-240
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000
Rack travel in mm : 9,00
Del. quantity cm3/ : 4,0...4,6
100 s : (-)
Spread cm3 : 0,4
100 s : (-)
2nd speed rpm : 200
Rack travel in mm : 6,00
Del. quantity cm3/ : 1,2...2,2
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70
Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 900
Del. quantity : 57,4...58,4
1000 : (57,0...62,0)

RATED SPEED

1st version
Control lever
position degrees: 46...54

Testing:
1st rack travel in: 7.80
Speed rpm : 950
2nd rack travel in: 3.10
Speed rpm : 1005...1035
4th rack travel in: 1150
Speed rpm : 0.30...1.00

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 200
Rack travel in mm : 6,00

Testing:
Speed rpm : 100
Minimum rack trave: 19,00

Speed rpm : 200
Rack travel in mm : 5,80...6,20
Rack travel in mm : 2,10
Speed rpm : 390...410
Speed rpm : 550
Maximum rack trave: 1,00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 915...925

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 12,50...13,00

HIGH IDLE

1st version
Speed rpm : 950
Rack travel in mm : 4,00

Remarks:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KIR 3,9 b
Edition : 08.08.89
Replaces : -
Test oil : ISO-4113
Combination no. : 9 400 030 322
Injection pump
Pump designation : PES4A85D320RS2530
Governor
Governor design. : RSV250...900A1B2015R

Customer-spec. information
Customer : KIRLOSKAR

Engine : RDA 4

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00 -
Firing order : 1-3-4-2

Phasing : 0-90-180-270
Tolerance + - ° : 0,50 (0,75)

L28

BASIC SETTING

1st speed rpm : 1000
Rack travel in mm : 9,00
Del. quantity cm³/ : 4,1...4,5
100 s : (-)
Spread cm³ : 0,4
100 s : (-)
2nd speed rpm : 200
Rack travel in mm : 9,00
Del. quantity cm³/ : 1,4...2,4
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 900
Del. quantity : 47,4...48,4
1000 : (45,4...50,4)

RATED SPEED

1st version
Control lever
position degrees: 46...54

Testing:
1st rack travel in: 7,80
Speed rpm : 935...965
3rd rack travel in: 1,70...4,50
Speed rpm : 1020
4th rack travel in: 1150
Speed rpm : 0,30...1,00

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 200
Rack travel in mm : 6,00

Testing:
Speed rpm : 100
Minimum rack trave: 19,00

Speed rpm : 200
Rack travel in mm : 5,80...6,20
Rack travel in mm : 2,10
Speed rpm : 390...410
Speed rpm : 550
Maximum rack travel: 1,00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 915...925

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 12,50...13,00

HIGH IDLE

1st version
Speed rpm : <950
Rack travel in mm : 4,00

Remarks:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KIR 5,8 b
Edition : 08.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 9 400 030 323

Injection pump
Pump designation : PES6A85D32ORS2531
Governor
Governor design. : RSV250...900A1B2015R

Customer-spec. information
Customer : KIRLOSKAR

Engine : RDA 6

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

M02

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 4,1...4,5

100 s : (-)

Spread cm³ : 0,4

100 s : (-)

2nd speed rpm : 200

Rack travel in mm : 9,00

Del. quantity cm³/ : 1,4...2,4

100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del. quantity : 47,4...48,4

1000 : (45,4...50,4)

RATED SPEED

1st version

Control lever

position degrees: 46...54

Testing:

1st rack travel in: 7,80

Speed rpm : 935...965

3rd rack travel in: 1,70...4,50

Speed rpm : 1020

4th rack travel in: 1150

Speed rpm : 0,30...1,00

LOW IDLE 1

Control lever

position degrees: 18...26

Setting point w/out bumper spring

Speed rpm : 200

Rack travel in mm : 6,00

Testing:

Speed rpm : 100

Minimum rack travel: 19,00

Speed rpm : 200
Rack travel in mm : 5,80...6,20
Rack travel in mm : 2,10
Speed rpm : 390...410
Speed rpm : 550
Maximum rack trave: 1,00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 915...925

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 12,50...13,00

HIGH IDLE

1st version
Speed rpm : <950
Rack travel in mm : 4,00

Remarks:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KIR 1,9 d
Edition : 21.07.89
Replaces : -
Test oil : ISO-4113

Combination no. : 9 400 030 350

Injection pump
Pump designation : PES2A85D32ORS2528
Governor
Governor design. : RSV250...950A7B2029R

Customer-spec. information
Customer : KIRLOSKAR

Engine : RD 2

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Inlet press., bar : 1.00

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 6,00

Del.quantity cm3/ : 0,45...1,45

MO4

100 s: (-)

Spread cm3 : 0,40

100 s: (-)

2nd speed rpm : 200
Rack travel in mm : 9,00
Del.quantity cm3/ : 1,25...2,25
100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3

Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 730
Del.quantity : 54,5...55,5
1000 : (53,5...56,5)

RATED SPEED

1st version
Control lever
position degrees: 41...49

Testing:
1st rack travel in: 16.00
Speed rpm : 740...760
2nd rack travel in: 11.60
Speed rpm : 770...790
3rd rack travel in: 6.10...6.30
Speed rpm : 810

LOW IDLE 1

Control lever
position degrees: 8...16
Setting point w/out bumper spring
Speed rpm : 200
Rack travel in mm : 6,00

Testing:
Speed rpm : 100
Minimum rack trave: 17,00
Speed rpm : 200
Rack travel in mm : 5,80...6,20
Rack travel in mm : 4,20
Speed rpm : 290...310
Speed rpm : 500
Maximum rack trave: 1,00

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: ?

Speed rpm : 920...950

STARTING FUEL DELIVERY

Speed rpm : 100

Rack travel in mm : 12,50...13,00

Remarks:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KIR 3,9 a 1
Edition : 31.07.89
Replaces : -
Test oil : ISO-4113
Combination no. : 9 400 030 352
Injection pump
Pump designation : PES4A85D32ORS2530
Governor
Governor design. : RSV250...950A7B2059D
R

Customer-spec. information
Customer : KIRLOSKAR

Engine : RD 4

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38..42

Inlet press., bar : 1.0

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6,00X2,00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-3-4-2

Phasing : 0-90-180-270
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

M06

1st speed rpm : 1000

Rack travel in mm : 6,00

Del. quantity cm3/ : 0,45...1,45

100 s : (-)

Spread cm3 : 0,4

100 s : (-)

2nd speed rpm : 200

Rack travel in mm : 9,00

Del. quantity cm3/ : 1,25...2,25

100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 730

Del. quantity : 54,5...55,5

1000 : (53,5...56,5)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:

1st rack travel in: 16.00

Speed rpm : 740...760

2nd rack travel in: 11.60

Speed rpm : 770...790

3rd rack travel in: 6.20

Speed rpm : 795...825

LOW IDLE 1

Control lever

position degrees: 8...16

Setting point w/out bumper spring

Speed rpm : 200

Rack travel in mm : 6,00

Testing:

Speed rpm : 100

Minimum rack travel: 17,00

Speed rpm : 200

Rack travel in mm : 5,80...6,20

Rack travel in mm : 4.20
Speed rpm : 290...310
Speed rpm : 500
Maximum rack trave: 1,00

BREAKAWAY

1st version
Speed rpm : 920...950

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 12,50...13,00

Remarks:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KIR 5,8 a 1
Edition : 28.07.89
Replaces : -
Test oil : ISO-4113
Combination no. : 9 400 030 353
Injection pump
Pump designation : PES6A85D32ORS2531
Governor
Governor design. : RSV250...950A7B2059R

Customer-spec. information
Customer : KIRLOSKAR

Engine : RD 6

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Inlet press., bar : 1.0

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

M08

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 3,95...4,55

100 s : (-)

Spread cm³ : 0,4

100 s : (-)

2nd speed rpm : 200

Rack travel in mm : 9,00

Del. quantity cm³/ : 1,25...2,25

100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del. quantity : 58,5...59,5

1000 : (56,5...61,5)

RATED SPEED

1st version

Control lever

position degrees: 51...59

Testing:

1st rack travel in: 14.50

Speed rpm : 900...920

2nd rack travel in: 2.90

Speed rpm : 985...1015

4th rack travel in: 1080

Speed rpm : 0.30...1.00

LOW IDLE 1

Control lever

position degrees: 8...16

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 6,00

Testing:

Speed rpm : 100

Minimum rack travel: 17,00

Speed rpm : 250

Rack travel in mm : 5,80...6,20

Rack travel in mm : 4.20

Speed rpm : 290...310
Speed rpm : 500
Maximum rack trave: 1,00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 920...950

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 12.50...13.00

Remarks:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KIR 1,9 a
Edition : 08.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 9 400 030 354

Injection pump
Pump designation : PES2A85D32ORS2528
Governor
Governor design. : RSV250...1200A1B2058
DR

Customer-spec. information
Customer : KIRLOSKAR

Engine : RDA 2

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-2

Phasing : 0-90
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000
Rack travel in mm : 9,00
Del. quantity cm³/ : 4,1...4,7
100 s : (-)
Spread cm³ : 0,4
100 s : (-)

2nd speed rpm : 200
Rack travel in mm : 9,00
Del. quantity cm³/ : 1,3...2,3
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1200
Del. quantity : 57,0...58,0
1000 : (55,0...60,0)

RATED SPEED

1st version
Control lever
position degrees: 60...68

Testing:
1st rack travel in: 9,00
Speed rpm : 1250...1260
2nd rack travel in: 5,50
Speed rpm : 1275...1305
4th rack travel in: 1400
Speed rpm : 0,30...1,70

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 200
Rack travel in mm : 6,00

Testing:

Speed rpm : 100
Minimum rack trave: 19,00
Speed rpm : 200
Rack travel in mm : 5,80...6,20
Rack travel in mm : 4,25
Speed rpm : 290...310
Speed rpm : 500
Maximum rack trave: 1,000

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 9,00
2nd speed rpm : 750
Rack travel in m: 10,20...10,60
3rd speed rpm : 500
Rack travel in m: 10,80...11,30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm3/ : 54,6...58,4
1000 s: (53,0...60,0)
Speed rpm : 750
Del.quantity cm3/ : 54,6...58,4
1000 s: (53,0...60,0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 1250...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 12,50...13,00

HIGH IDLE

1st version

Speed rpm : 1275
Rack travel in mm : 5,50

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KIR 2,9 a
Edition : 08.08.89
Replaces : -
Test oil : ISO-4113
Combination no. : 9 400 030 355
Injection pump
Pump designation : PES3A85D320RS2529
Governor
Governor design. : RSV250...1200A1B2058
DR

Customer-spec. information
Customer : KIRLOSKAR

Engine : RDA 3

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve
: 1 417 413 000

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-3-2

Phasing : 0-120-240
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000
Rack travel in mm : 9,00
Del. quantity cm³/ : 4,1...4,7
100 s : (-)
Spread cm³ : 0,4
100 s : (-)
2nd speed rpm : 200
Rack travel in mm : 9,00
Del. quantity cm³/ : 1,3...2,3
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1200
Del. quantity : 57,0...58,0
1000 : (55,0...60,0)

RATED SPEED

1st version
Control lever
position degrees: 60...68

Testing:
1st rack travel in: 9,00
Speed rpm : 1250...1260
2nd rack travel in: 5,50
Speed rpm : 1275...1305
4th rack travel in: 1400
Speed rpm : 0,30...1,70

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 200
Rack travel in mm : 6,00

Testing:

Speed rpm : 100
Minimum rack trave: 19,00
Speed rpm : 200
Rack travel in mm : 5,80...6,20
Rack travel in mm : 4,25
Speed rpm : 290...310
Speed rpm : 500
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1150
Rack travel in m: 9,00
2nd speed rpm : 750
Rack travel in m: 10,20...10,60
3rd speed rpm : 500
Rack travel in m: 10,80...11,30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm3/ : 54,6...58,4
1000 s: (53,0...60,0)
Speed rpm : 750
Del.quantity cm3/ : 54,6...58,4
1000 s: (53,0...60,0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 1250...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 12,50...13,00

HIGH IDLE

1st version

Speed rpm : 1275
Rack travel in mm : 5,50

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KIR 3,9 a
Edition : 08.08.89
Replaces : -
Test oil : ISO-4113
Combination no. : 9 400 030 356
Injection pump
Pump designation : PES4A85D320RS2530
Governor
Governor design. : RSV250...1200A1B2058
DR

Customer-spec. information
Customer : KIRLOSKAR

Engine : RDA 4

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 000

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-3-4-2

Phasing : 0-90-180-270
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000
Rack travel in mm : 9,00
Del. quantity cm3/ : 4,1...4,7
100 s: (-)
Spread cm3 : 0,4
100 s: (-)
2nd speed rpm : 200
Rack travel in mm : 9,00
Del. quantity cm3/ : 1,3...2,3
100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1200
Del. quantity : 57,0...58,0
1000 : (55,0...60,0)

RATED SPEED

1st version
Control lever
position degrees: 60...68

Testing:
1st rack travel in: 9,00
Speed rpm : 1250...1260
2nd rack travel in: 5,50
Speed rpm : 1275...1305
4th rack travel in: 1400
Speed rpm : 0,30...1,70

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 200
Rack travel in mm : 6,00

Testing:

Speed rpm : 100
Minimum rack trave: 19,00
Speed rpm : 200
Rack travel in mm : 5,80...6,20
Rack travel in mm : 4,25
Speed rpm : 290...310
Speed rpm : 500
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1150
Rack travel in m: 9,00
2nd speed rpm : 750
Rack travel in m: 10,20...10,60
3rd speed rpm : 500
Rack travel in m: 10,80...11,30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm3/ : 54,6...58,4
1000 s: (53,0...60,0)
Speed rpm : 750
Del.quantity cm3/ : 54,6...58,4
1000 s: (53,0...60,0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 1250...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 12,50...13,00

HIGH IDLE

1st version

Speed rpm : 1275
Rack travel in mm : 5,50

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KIR 5,8 a
Edition : 08.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 9 400 030 357

Injection pump
Pump designation : PES4A85D32ORS2531
Governor
Governor design. : RSV250...1200A1B2058
DR

Customer-spec. information
Customer : KIRLOSKAR

Engine : RDA 6

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 000

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000
Rack travel in mm : 9,00
Del. quantity cm³/ : 4,1...4,7
100 s : (-)
Spread cm³ : 0,4
100 s : (-)

2nd speed rpm : 200
Rack travel in mm : 9,00
Del. quantity cm³/ : 1,3...2,3
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1200
Del. quantity : 57,0...58,0
1000 : (55,0...60,0)

RATED SPEED

1st version
Control lever
position degrees: 60...68

Testing:
1st rack travel in: 9,00
Speed rpm : 1250...1260
2nd rack travel in: 5,50
Speed rpm : 1275...1305
4th rack travel in: 1400
Speed rpm : 0,30...1,70

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 200
Rack travel in mm : 6,00

Testing:

Speed rpm : 100
Minimum rack trave: 19,00
Speed rpm : 200
Rack travel in mm : 5,80...6,20
Rack travel in mm : 4,25
Speed rpm : 290...310
Speed rpm : 500
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 9,00
2nd speed rpm : 750
Rack travel in m: 10,20...10,60
3rd speed rpm : 500
Rack travel in m: 10,80...11,30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm3/ : 54,6...58,4
1000 s: (53,0...60,0)
Speed rpm : 750
Del.quantity cm3/ : 54,6...58,4
1000 s: (53,0...60,0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 1250...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 12,50...13,00

HIGH IDLE

1st version

Speed rpm : 1275
Rack travel in mm : 5,50

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : TAT 5,7 b
 Edition : 08.08.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 030 428
 Injection pump
 Pump designation : PES6A90D410RS2574
 Governor
 Governor design. : RQV300...1400AB1095L

Customer-spec. information
 Customer : TATA

Engine : 697 D

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.5

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6,00X1,50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0,50 (0,75)

M18

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 9,00
 Del. quantity cm3/ : 4,9...5,2
 100 s : (-)
 Spread cm3 : 0,3
 100 s : (-)
 2nd speed rpm : 200
 Rack travel in mm : 9,00
 Del. quantity cm3/ : 2,0...2,9
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1400
 Del. quantity : 64,0...65,0
 1000 : (62,0...67,0)

RATED SPEED

1st version
 Control lever
 position degrees: 58...66

Testing:
 1st rack travel in: 8,70
 Speed rpm : 1440...1470
 2nd rack travel in: 4,00
 Speed rpm : 1550...1585
 3rd rack travel in: 2,00
 Speed rpm : 1595...1630

LOW IDLE 1

Control lever
 position degrees: 11...19
 Setting point w/out bumper spring
 Speed rpm : 300
 Rack travel in mm : 5,90...6,00

Testing:
 Speed rpm : 100
 Minimum rack travel: 7,00

Speed rpm : 450
Rack travel in mm : 3,00...4,20
Speed rpm : 760
Maximum rack trave: 1,00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8,70
Speed rpm : 1460...1470

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 13,70...14,30

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 6,1 u
Edition : 23.08.89
Replaces : -
Test oil : ISO-4113
Combination no. : 9 400 030 432
Injection pump
Pump designation : PES6A80D410RS1334
Governor
Governor design. : RSV325...1150A8B2134
L

Customer-spec. information
Customer : KHD

Engine : F6L 912

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6,00X2,00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Prestroke mm : 1,90...2,00
: (1,85...2,05)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000
Rack travel in mm : 9,00
Del. quantity cm3/ : 4,40...4,60
100 s : (-)
Spread cm3 : 0,3
100 s : (-)
2nd speed rpm : 200
Rack travel in mm : 6,00
Del. quantity cm3/ : 0,2...0,8
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70
Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1150
Del. quantity : 52,4...55,4
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 50...58

Testing:
1st rack travel in: 8,00
Speed rpm : 1190...1200
2nd rack travel in: 5,50
Speed rpm : 1220...1240
4th rack travel in: 1450
Speed rpm : 0,30...1,70

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 6,00

Testing:

Speed rpm : 200
Minimum rack travel: 19,00
Speed rpm : 325
Rack travel in mm : 5,80...6,20

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1150
Rack travel in m: 9,00
2nd speed rpm : 900
Rack travel in m: 9,70...9,90
3rd speed rpm : 750
Rack travel in m: 10,30
4th speed rpm : 600
Rack travel in m: 10,70...10,90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 52,4...55,4
1000 s: (49,4...58,4)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 1190...1200

HIGH IDLE

1st version

Speed rpm : 1230
Rack travel in mm : 5,50

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : YDA 4,9 b
Edition : 09.08.89
Replaces : -
Test oil : ISO-4113
Combination no. : 9 400 030 442
Injection pump
Pump designation : PES4A90D310/3LS2630
Governor
Governor design. : RSV250...750A7B685L

Customer-spec. information
Customer : RUSTON & HORNSBY

Engine : 4 YDAX

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6,00x1,50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-3-4-2

Phasing : 0-90-180-270
Tolerance + - ° : 0,50 (0,75)

M22

BASIC SETTING

1st speed rpm : 1000
Rack travel in mm : 9,00
Del.quantity cm3/ : 6,0...6,5

100 s: (-)

Spread cm3 : 0,4
100 s: (-)

2nd speed rpm : 200
Rack travel in mm : 6,00
Del.quantity cm3/ : 3,3...4,5
100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 730
Del.quantity : 97,6...98,8
1000 : (94,6...100,8)

RATED SPEED

1st version
Control lever
position degrees: 36...44

Testing:
1st rack travel in: 11,00
Speed rpm : 760...765
2nd rack travel in: 5,50
Speed rpm : <785
4th rack travel in: 950
Speed rpm : 0,30...1,70

LOW IDLE 1

Control lever
position degrees: 10...18
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6,00

Testing:
Speed rpm : 100
Minimum rack travel: 17,00

Speed rpm : 250
Rack travel in mm : 5,80...6,20
Rack travel in mm : 2,00
Speed rpm : 425...475

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 760...765

HIGH IDLE

1st version
Speed rpm : <800
Rack travel in mm : 5,50

Remarks:

APPLICATION

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : YDA 7,3 c
 Edition : 09.08.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 030 443
 Injection pump
 Pump designation : PES6A90D310/3LS2631
 Governor
 Governor design. : RSV250...750A7B685L

Customer-spec. information
 Customer : RUSTON & HORNSBY

Engine : 6 YDAX

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.5

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6,00x1,50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0,50 (0,75)

M24

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 9,00
 Del. quantity cm3/ : 6,0...6,5
 100 s : (-)
 Spread cm3 : 0,4
 100 s : (-)
 2nd speed rpm : 200
 Rack travel in mm : 6,00
 Del. quantity cm3/ : 3,3...4,5
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 730
 Del. quantity : 97,6...98,8
 1000 : (94,6...100,8)

RATED SPEED

1st version
 Control lever
 position degrees: 36...44

Testing:
 1st rack travel in: 11,00
 Speed rpm : 760...765
 2nd rack travel in: 5,50
 Speed rpm : <785
 4th rack travel in: 950
 Speed rpm : 0,30...1,70

LOW IDLE 1

Control lever
 position degrees: 10...18
 Setting point w/out bumper spring
 Speed rpm : 250
 Rack travel in mm : 6,00

Testing:
 Speed rpm : 100
 Minimum rack trave: 17,00

Speed rpm : 250
Rack travel in mm : 5,80...6,20
Rack travel in mm : 2,00
Speed rpm : 425...475

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 760...765

HIGH IDLE

1st version
Speed rpm : <800
Rack travel in mm : 5,50

Remarks:

APPLICATION

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : YDA 4,9 a
Edition : 08.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 9 400 030 451

Injection pump
Pump designation : PES6A95D310/3LS2636
Governor
Governor design. : RSV250...900A7B685L

Customer-spec. information
Customer : RUSTON & HORNSBY

Engine : 6 YDX MK 2

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6,00X1,50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

M26

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm3/ : 6,2...7,7

100 s : (-)

Spread cm3 : 0,4

100 s : (-)

2nd speed rpm : 200

Rack travel in mm : 6,00

Del. quantity cm3/ : 0,4...1,5

100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del. quantity : 121,0...123,0

1000 : (119,0...125,0)

RATED SPEED

1st version

Control lever

position degrees: 38...46

Testing:

1st rack travel in: 11,0

Speed rpm : 760...765

2nd rack travel in: 5,50

Speed rpm : <790

4th rack travel in: 930

Speed rpm : 0,30...1,70

LOW IDLE 1

Control lever

position degrees: 8...16

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 6,00

Testing:

Speed rpm : 100

Minimum rack trave: 17,00

Speed rpm : 250
Rack travel in mm : 5,80...6,20
Rack travel in mm : 2,00
Speed rpm : 420...470

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 760...765

HIGH IDLE

1st version
Speed rpm : <800
Rack travel in mm : 5,50

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : YDA 4,9 a
Edition : 08.08.89
Replaces : -
Test oil : ISO-4113
Combination no. : 9 400 030 452
Injection pump
Pump designation : PES4A95D310/3LS2635
Governor
Governor design. : RSV250...900A7B685L

Customer-spec. information
Customer : RUSTON & HORNSBY

Engine : 4 YDX MK 2

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 025

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6,00x1,50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-3-4-2

Phasing : 0-90-180-270
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000
Rack travel in mm : 9,00
Del. quantity cm3/ : 6,2...7,7
100 s : (-)
Spread cm3 : 0,4
100 s : (-)
2nd speed rpm : 200
Rack travel in mm : 6,00
Del. quantity cm3/ : 0,4...1,5
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 750
Del. quantity : 121,0...123,0
1000 : (119,0...125,0)

RATED SPEED

1st version
Control lever
position degrees: 38...46

Testing:
1st rack travel in: 11,0
Speed rpm : 760...765
2nd rack travel in: 5,50
Speed rpm : <790
4th rack travel in: 930
Speed rpm : 0,30...1,70

LOW IDLE 1

Control lever
position degrees: 8...16
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6,00

Testing:
Speed rpm : 100
Minimum rack trave: 17,00

Speed rpm : 250
Rack travel in mm : 5,80...6,20
Rack travel in mm : 2,00
Speed rpm : 420...470

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 760...765

HIGH IDLE

1st version
Speed rpm : <800
Rack travel in mm : 5,50

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : TAT 5,7 a
 Edition : 08.08.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 030 465
 Injection pump
 Pump designation : PES6A90D410RS2657
 Governor
 Governor design. : RQV300...1400AB1095L

Customer-spec. information
 Customer : TATA

Engine : 697 D

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.5

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6,00x1,50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0,50 (0,75)

N02

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 4,9...5,2

100 s : (-)

Spread cm³ : 0,3

100 s : (-)

2nd speed rpm : 200

Rack travel in mm : 9,00

Del. quantity cm³/ : 2,0...2,9

100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del. quantity : 64,0...65,0

1000 : (62,0...67,0)

RATED SPEED

1st version

Control lever

position degrees: 58...66

Testing:

1st rack travel in: 8,70

Speed rpm : 1440...1470

2nd rack travel in: 4,00

Speed rpm : 1550...1585

3rd rack travel in: 2,00

Speed rpm : 1595...1630

LOW IDLE 1

Control lever

position degrees: 11...19

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 5,95

Testing:

Speed rpm : 100

Minimum rack travel: 7,00

Speed rpm : 450
Rack travel in mm : 3,00...4,20
Speed rpm : 760
Maximum rack trave: 1,00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8,70
Speed rpm : 1460...1470

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 13,70...14,30

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KIR 3,7 a
Edition : 08.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 9 400 030 488

Injection pump
Pump designation : PES4A800410RS1319
Governor
Governor design. : RSV250...750A7B2191L

Customer-spec. information
Customer : KIRLOSKAR

Engine : HA 494

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Prestroke mm : 1,90...2,00
 : (1,85...2,05)
Rack travel in mm : 9,00...12,00
Firing order : 1-3-4-2

Phasing : 0-90-180-270
Tolerance + - ° : 0,50 (0,75)

NO4

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 4,4...4,7

100 s : (-)

Spread cm³ : 0,3

100 s : (-)

2nd speed rpm : 200
Rack travel in mm : 6,00
Del. quantity cm³/ : 0,4...0,9
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 730
Del. quantity : 53,4...54,4
1000 : (52,0...56,0)

RATED SPEED

1st version
Control lever
position degrees: 28...46

Testing:
1st rack travel in: 9,30
Speed rpm : 760...765
2nd rack travel in: 5,50
Speed rpm : <790
4th rack travel in: 950
Speed rpm : 0,3...1,7

LOW IDLE 1

Control lever
position degrees: 10...18
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6,00

Testing:
Speed rpm : 100
Minimum rack travel: 17,00

Speed rpm : 250
Rack travel in mm : 5,80...6,20
Rack travel in mm : 2,00
Speed rpm : 320...370

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 760...765

HIGH IDLE

1st version
Speed rpm : 805
Rack travel in mm : 5,50

Remarks:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 3,9 a
 Edition : 15.08.89
 Replaces : 4.85
 Test oil : ISO-4113
 Combination no. : 9 400 085 240
 Injection pump
 Pump designation : PES4A90D32ORS2702
 EP type number : 9 400 083 095
 Governor
 Governor design. : RSV350...1150A2B2129
 -4R
 Governor no. : 9 420 083 193

Customer-spec. information
 Customer : MWM

Engine : D 229-4

1st version kW : 75.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.65...2.75
 : (2.60...2.80)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 3.00...4.00

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 9.00...9.10

Del. quantity cm3/ : 6.3...6.4

100 s: (6.1...6.6)

Spread cm3 : 0.3

100 s: (0.5)

2nd speed rpm : 350.0

Rack travel in mm : 5.6...5.8

Del. quantity cm3/ : 1.0...1.4

100 s: (0.8...1.6)

Spread cm3 : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del. quantity : 63.5...64.5

1000 : (61.5...66.5)

Spread cm3 : 3.00

1000 : (5.00)

RATED SPEED

1st version

Control lever
position degrees: 45...53

Testing:

1st rack travel in: 8.00
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1230...1260
4th rack travel in: 1400
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.2

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 5.60...5.80
Rack travel in mm : 2.00
Speed rpm : 560...620

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 9.00...9.10
2nd speed rpm : 500
Rack travel in m: 10.10...10.20
3rd speed rpm : 800
Rack travel in m: 9.70...9.90
4th speed rpm : 1000
Rack travel in m: 9.10...9.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del. quantity cm3/ : 61.0...63.0
1000 s: (59.5...64.5)
Speed rpm : 800
Del. quantity cm3/ : 66.0...68.0
1000 s: (63.5...70.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.00
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

Remarks:

: VALMET

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 6,6 l i
 Edition : 02.05.89
 Replaces : 1.9.88
 Test oil : ISO-4113
 Combination no. : 9 400 085 298
 Injection pump
 Pump designation : PES6A9SD410RS2758
 EP type number : 9 400 084 016
 Governor
 Governor design. : RQV350...1300AB1220-3L
 Governor no. : 9 420 080 253

Customer-spec. information
 Customer : FORD FNH

Engine : 6,6 L

1st version kW : 123.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.15...3.25
 : (3.10...3.30)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 13.20...13.30

Del. quantity cm3/ : 9.8...10.0

100 s: (9.6...10.2)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 7.1...7.3

Del. quantity cm3/ : 2.0...2.4

100 s: (1.7...2.6)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1335

travel mm : 8.00...8.10

2nd speed rpm : 350

travel mm : 1.20...1.60

3rd speed rpm : 500

travel mm : 2.90...3.30

4th speed rpm : 1000

travel mm : 5.30...5.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1530

Rack travel in mm : 8.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 900

Del.quantity : 98.0...100.0
1000 : (96.0...102.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 112...120

Testing:

1st rack travel in: 12.20
Speed rpm : 1360...1370
2nd rack travel in: 4.00
Speed rpm : 1500...1530
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 67...75

Testing:

Speed rpm : 100
Minimum rack travel: 10.00
Speed rpm : 350
Rack travel in mm : 7.10...7.30
Rack travel in mm : 2.00
Speed rpm : 680...740

CONSTANT REGULATION

Speed rpm : 370...440

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.20...13.30

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.50...10.70
2nd pressure hPa : 353
Rack travel in m: 11.20...11.30
3rd pressure hPa : 473
Rack travel in m: 12.40...12.80

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 800
Del.quantity cm3/ : 87.0...91.0
1000 s: (85.0...93.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 55.0...57.0
1000 s: (53.0...59.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.20
Speed rpm : 1360...1370

INTERMEDIATE RATED SPEED

Rack travel in mm : 4.00

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 145.0...165.0
1000 s: (140.0...170.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 7.10...7.30
Del.quantity cm3/ : 20.0...24.0
1000 s: (17.5...26.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEZ 6,1 d
Edition : 02.05.89
Replaces : 1.9.88
Test oil : ISO-4113

Combination no. : 9 400 085 301

Injection pump
Pump designation : PES6A85D41ORS2415
EP type number : 0 410 886 907
Governor
Governor design. : RQV300...1325AB1234-1L
Governor no. : 9 420 080 259

Customer-spec. information
Customer : DEUTZ ARGENTINA

Engine : BF 6L 913

1st version kW : 116.0
Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00
: (1.85...2.05)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1325

Rack travel in mm : 11.00...11.10

Del. quantity cm³/ : 7.7...7.8
100 s: (7.5...8.0)

Spread cm³ : 0.2
100 s: (0.5)

2nd speed rpm : 300.0
Rack travel in mm : 7.9...8.1
Del. quantity cm³/ : 1.5...1.9
100 s: (1.3...2.1)

Spread cm³ : 0.2
100 s: (0.4)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1400
travel mm : 8.80...8.90

2nd speed rpm : 300
travel mm : 0.80...1.20

3rd speed rpm : 600
travel mm : 2.90...3.30

4th speed rpm : 900
travel mm : 4.80...5.20

5th speed rpm : 1200
travel mm : 6.80...7.20

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1

Speed rpm : 1325
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1325
Del. quantity : 77.0...78.0
1000 : (75.0...80.0)

Spread cm3 : 2.00
1000 : (5.00)

RATED SPEED

1st version
Control lever
position degrees: 55...63

Testing:

1st rack travel in: 10.00
Speed rpm : 1365...1375
2nd rack travel in: 4.00
Speed rpm : 1465...1485
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 9...17

Testing:

Speed rpm : 100
Minimum rack travel: 9.50
Speed rpm : 300
Rack travel in mm : 7.90...8.10

CONSTANT REGULATION

Speed rpm : 370...530

TORQUE CONTROL

Dimension a mm : 1.00
Torque control curve - 1st version
1st speed rpm : 1325
Rack travel in m: 11.00...11.10
2nd speed rpm : 500
Rack travel in m: 12.00...12.10
3rd speed rpm : 800
Rack travel in m: 11.80...12.10
4th speed rpm : 1100
Rack travel in m: 11.30...11.50

START CUT-OUT

Speed 1/min : 250 (270)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del. quantity cm3/ : 74.0...76.0
1000 s: (71.5...78.5)
Speed rpm : 800
Del. quantity cm3/ : 77.5...79.5
1000 s: (75.0...82.0)
Speed rpm : 1100
Del. quantity cm3/ : 78.0...80.0
1000 s: (75.5...82.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.00
Speed rpm : 1365...1375

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 g
Edition : 15.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 9 400 085 305

Injection pump
Pump designation : PES6A95D410RS2772
EP type number : 9 400 084 018
Governor
Governor design. : RQV300...1300AB1066-6L
Governor no. : 9 420 080 265

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM 366 A

1st version kW : 125.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 006

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
: (3.15...3.35)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.40...10.50

Del. quantity cm³/ : 8.7...8.9

100 s: (8.5...9.1)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.9...7.1

Del. quantity cm³/ : 1.2...1.8

100 s: (1.0...2.0)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 0.80...1.30

2nd speed rpm : 500
travel mm : 2.30...2.80

3rd speed rpm : 750
travel mm : 4.10...4.30

4th speed rpm : 1500
travel mm : 8.50...8.60

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1

Speed rpm : 1500

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del. quantity : 87.5...89.5

1000 : (85.5...91.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 55...63

Testing:

1st rack travel in: 9.40

Speed rpm : 1340...1350

2nd rack travel in: 4.00

Speed rpm : 1460...1490

4th rack travel in: 1630

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 12...20

Testing:

Speed rpm : 100

Minimum rack travel: 8.00

Speed rpm : 300

Rack travel in mm : 6.90...7.10

CONSTANT REGULATION

Speed rpm : 420...550

TORQUE CONTROL

Dimension a mm : ?

Torque control curve - 1st version

1st speed rpm : 1300

Rack travel in m: 10.40...10.50

2nd speed rpm : 700

Rack travel in m: 10.90...11.00

4th speed rpm : 1000

Rack travel in m: 10.60...10.80

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 700

Rack travel mm : 10.90...11.00

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 9.50...9.70

2nd pressure hPa : 460

Rack travel in m: 10.70...10.80

3rd pressure hPa : 250

Rack travel in m: 9.80...10.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 700

Del.quantity cm3/ : 86.5...89.5

1000 s: (84.0...92.0)

Aneroid pressure h: 700

Speed rpm : 1000

Del.quantity cm3/ : 90.0...93.0

1000 s: (87.5...95.5)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 60.5...62.5

1000 s: (58.5...64.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.40

Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 100.0...110.0

Rack travel in mm : 13.90...14.10

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 4,0 f
 Edition : 15.08.89
 Replaces : -
 Test oil : ISO-4113

Combination no. : 9 400 085 307

Injection pump
 Pump designation : PES4A95D41ORS2774
 EP type number : 9 400 084 019
 Governor
 Governor design. : RQV300...1300AB1228-1L
 Governor no. : 9 420 080 268

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM 364 A

1st version kW : 85.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 006

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar : 38...42

Prestroke mm : 3.20...3.30
 : (3.15...3.45)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.60...10.70

Del. quantity cm³/ : 9.0...9.2
 100 s: (8.8...9.4)

Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 300.0
 Rack travel in mm : 6.9...7.1
 Del. quantity cm³/ : 1.2...1.8
 100 s: (1.0...2.0)

Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 0.80...1.30

2nd speed rpm : 500
 travel mm : 2.30...2.80

3rd speed rpm : 750
 travel mm : 4.10...4.30

4th speed rpm : 1500
 travel mm : 8.50...8.60

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1500

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1300
 Aneroid pressure h: 700
 Del. quantity : 90.0...92.0
 1000 : (88.0...94.0)

Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 56...64

Testing:
1st rack travel in: 9.60
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1470...1500
4th rack travel in: 1640
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 12...20

Testing:
Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.90...7.10

CONSTANT REGULATION
Speed rpm : 420...550

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 10.60...10.70
2nd speed rpm : 700
Rack travel in m: 11.20...11.30
4th speed rpm : 1000
Rack travel in m: 10.80...11.00

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 11.20...11.30

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.90...10.10
2nd pressure hPa : 460
Rack travel in m: 11.00...11.10
3rd pressure hPa : 370
Rack travel in m: 10.30...10.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 700
Del. quantity cm³/ : 92.0...95.0
1000 s: (89.5...97.5)
Aneroid pressure h: 700
Speed rpm : 1000
Del. quantity cm³/ : 90.5...93.5
1000 s: (88.0...96.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 67.0...69.0
1000 s: (65.0...71.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.60
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 100.0...110.0
Rack travel in mm : 13.90...14.10

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 g 1
 Edition : 15.08.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 085 308
 Injection pump
 Pump designation : PES6A95D410RS2772
 EP type number : 9 400 084 018
 Governor
 Governor design. : RQV300...1400AB1065-18L
 Governor no. : 9 420 080 278

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM 366

1st version kW : 100.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 006

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 9.40...9.50

Del. quantity cm³/ : 6.8...7.0

100 s: (6.6...7.2)

Spread cm³ : 0.3

100 s: (0.3)

2nd speed rpm : 300.0

Rack travel in mm : 7.1...7.3

Del. quantity cm³/ : 0.9...1.5

100 s: (0.7...1.7)

Spread cm³ : 0.3

100 s: (0.3)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 0.80...1.30

2nd speed rpm : 500

travel mm : 2.30...2.80

3rd speed rpm : 750

travel mm : 4.10...4.30

4th speed rpm : 1500

travel mm : 8.50...8.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1500

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del. quantity : 68.0...70.0

1000 : (66.0...72.0)

Spread cm³ : 3.50

1000 : (3.50)

RATED SPEED

1st version
Control lever
position degrees: 55...63

Testing:

1st rack travel in: 8.40
Speed rpm : 1440...1450
2nd rack travel in: 4.00
Speed rpm : 1520...1550
4th rack travel in: 1660
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 12...20

Testing:

Speed rpm : 100
Minimum rack travel: 8.50
Speed rpm : 300
Rack travel in mm : 7.10...7.30

CONSTANT REGULATION

Speed rpm : 450...480

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del. quantity cm³/ : 53.5...56.5
1000 s: (51.0...59.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.40
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 100.0...110.0
Rack travel in mm : 13.70...13.90

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 g 2
 Edition : 15.08.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 085 310
 Injection pump
 Pump designation : PES6A95D410RS2772
 EP type number : 9 400 084 018
 Governor
 Governor design. : RQV300...1300AB1066-8L
 Governor no. : 9 420 080 279

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM 366 LA

1st version kW : 155.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 006

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness : 6.00x2.00x600
 x Length mm

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.08)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.10...11.20

Del. quantity cm3/ : 9.5...9.7

100 s: (9.3...9.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.9...7.1

Del. quantity cm3/ : 1.2...1.8

100 s: (1.0...2.0)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 0.80...1.30

2nd speed rpm : 500

travel mm : 2.30...2.80

3rd speed rpm : 750

travel mm : 4.10...4.30

4th speed rpm : 1500

travel mm : 8.50...8.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1500

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del. quantity : 95.0...97.0

1000 : (93.0...99.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 55...63

Testing:

1st rack travel in: 10.10
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1470...1500
4th rack travel in: 1640
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 12...20

Testing:

Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.90...7.10

CONSTANT REGULATION

Speed rpm : 420...550

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 11.10...11.20

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 9.40...9.70

2nd pressure hPa : 450

Rack travel in m: 10.80...10.90

3rd pressure hPa : 250

Rack travel in m: 9.90...10.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 700
Del. quantity cm³/ : 90.0...93.0
1000 s: (87.5...95.5)

Aneroid pressure h: -

Speed rpm : 500

Del. quantity cm³/ : 60.5...62.5
1000 s: (58.5...64.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10

Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm³/ : 100.0...110.0

Rack travel in mm : 13.90...14.10

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 10,0 q7
Edition : 21.05.87
Replaces : 5.85
Test oil : ISO-4113

Combination no. : 9 400 087 330

Injection pump
Pump designation : PE6P110A32ORS3108
EP type number : 0 411 816 727
Governor
Governor design. : RQV250...1100PA589-1
Governor no. : 9 420 080 166

Customer-spec. information
Customer : VOLVO

Engine : THD100 ED

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 000

Inlet press., bar : 1.20

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
: (2.95...3.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.10...12.20

Del. quantity cm³/ : 15.8...16.0

100 s: (15.5...16.3)

Spread cm³ : 0.4

100 s: (0.8)

2nd speed rpm : 250.0

Rack travel in mm : 5.0...5.2

Del. quantity cm³/ : 3.2...3.6

100 s: (-)

Spread cm³ : 0.3

100 s: (0.6)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.20...1.40

2nd speed rpm : 500

travel mm : 4.10...4.80

3rd speed rpm : 700

travel mm : 6.40...6.60

4th speed rpm : 1000

travel mm : 6.40...6.60

5th speed rpm : 1100

travel mm : 7.10...7.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1175

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 750

Del. quantity : 158.0...160.0

1000 : (155.0...163.0)

Spread cm³ : 4.00

1000 : (8.00)

RATED SPEED

1st version
Control lever
position degrees: 61...69

Testing:
1st rack travel in: 11.10
Speed rpm : 1160...1170
2nd rack travel in: 4.00
Speed rpm : 1225...1255
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 6...14

Testing:
Speed rpm : 100
Minimum rack trave: 6.70
Speed rpm : 250
Rack travel in mm : 5.00...5.20
Rack travel in mm : 2.00
Speed rpm : 345...405

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 750
Rack travel mm : 12.10...12.20

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.30...9.40
2nd pressure hPa : 600
Rack travel in m: 11.30...11.50
3rd pressure hPa : 300
Rack travel in m: 9.60...9.70

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm3/ : 105.0...107.0
1000 s: (102.0...110.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.10
Speed rpm : 1160...1170

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 160.0...190.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAT 7,0 d 2
 Edition : 15.08.89
 Replaces : 6.86
 Test oil : ISO-4113

Combination no. : 9 400 087 340

Injection pump
 Pump designation : PES4P100A720LS504
 EP type number : 9 400 087 052
 Governor
 Governor design. : RQV350...1100PA798-3
 Governor no. : 9 420 080 227

Customer-spec. information
 Customer : CATERPILLAR

Engine : 3304 DINA

1st version kW : 78.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 9 401 087 214

Inlet press., bar : 2.00

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.95...4.05
 : (3.90...4.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.10...10.20

Del. quantity cm³/ : 8.9...9.0

100 s: (8.7...9.3)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.8...7.0

Del. quantity cm³/ : 1.2...1.8

100 s: (1.0...1.9)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1150

travel mm : 8.50...8.60

2nd speed rpm : 350

travel mm : 1.30...1.70

3rd speed rpm : 450

travel mm : 3.20...3.50

4th speed rpm : 600

travel mm : 4.40...4.70

5th speed rpm : 1000

travel mm : 7.00...7.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 89.5...90.5
1000 : (87.0...93.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 63...71

Testing:

1st rack travel in: 9.10
Speed rpm : 1130...1140
2nd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1320
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 10...18

Testing:

Speed rpm : 100
Minimum rack trave: 9.50
Speed rpm : 350
Rack travel in mm : 5.10...5.30

CONSTANT REGULATION

Speed rpm : 320...390

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del.quantity cm3/ : 84.5...88.5
1000 s: (82.5...90.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.10
Speed rpm : 1130...1140

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 165.0...185.0
1000 s: (161.0...189.0)
Rack travel in mm : 19.00...21.00

N23

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.10...5.30

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAT 10,5 i
Edition : 15.08.89
Replaces : 8.1.88
Test oil : ISO-4113

Combination no. : 9 400 087 356

Injection pump
Pump designation : PES6P100A72OLS511
EP type number : 9 400 087 059
Governor
Governor design. : RQV350/840...900PA83
9
Governor no. : 9 420 080 233

Customer-spec. information
Customer : CATERPILLAR

Engine : 3306 DIT

1st version kW : 190.0
Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 9 401 087 348

Inlet press., bar : 2.00

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 2...3

N24

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 12.80...12.90

Del. quantity cm3/ : 18.2...18.4

100 s: (18.0...18.7)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.4...6.6

Del. quantity cm3/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 950
travel mm : 8.50...8.60

2nd speed rpm : 350
travel mm : 0.50...1.50

3rd speed rpm : 500
travel mm : 2.40...2.60

4th speed rpm : 750
travel mm : 2.40...2.60

5th speed rpm : 850
travel mm : 4.00...4.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 925

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del. quantity : 182.5...184.5
1000 : (180.0...187.0)
Spread cm3 : 3.50
1000 : (6.00)

Remarks:

RATED SPEED

1st version
Control lever
position degrees: 60...68

Testing:

1st rack travel in: 11.80
Speed rpm : 910...920
2nd rack travel in: 4.00
Speed rpm : 930...960
4th rack travel in: 1050
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 8...16

Testing:

Speed rpm : 100
Minimum rack travel: 7.00
Speed rpm : 350
Rack travel in mm : 4.70...4.90
Rack travel in mm : 2.00
Speed rpm : 770...830

START CUT-OUT

Speed 1/min : 290 (310)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.80
Speed rpm : 910...920

INTERMEDIATE RATED SPEED

Rack travel in mm : 4.00

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 220.0...240.0
1000 s: (216.0...244.0)
Rack travel in mm : 14.00...15.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.70...4.90

N25

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAT 7,0 d 3
 Edition : 15.08.89
 Replaces : 2.5.89
 Test oil : ISO-4113
 Combination no. : 9 400 087 395
 Injection pump
 Pump designation : PES4P100A720LS504
 EP type number : 9 400 087 052
 Governor
 Governor design. : RQV350...1100PA798-3
 Governor no. : 9 420 080 227

Customer-spec. information
 Customer : CATERPILLAR

Engine : 3304 DINA

1st version kW : 78.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 9 401 087 214

Inlet press., bar : 2.00

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 2...3

Prestroke mm : 3.95...4.05
 : (3.90...4.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.10...10.20

Del. quantity cm³/ : 8.9...9.0

100 s: (8.7...9.3)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.8...7.0

Del. quantity cm³/ : 1.2...1.8

100 s: (1.0...1.9)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1150

travel mm : 8.50...8.60

2nd speed rpm : 350

travel mm : 1.30...1.70

3rd speed rpm : 450

travel mm : 3.20...3.50

4th speed rpm : 600

travel mm : 4.40...4.70

5th speed rpm : 1000

travel mm : 7.00...7.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 89.5...90.5
1000 : (87.0...93.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 63...71

Testing:

1st rack travel in: 9.10
Speed rpm : 1130...1140
2nd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1320
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 10...18

Testing:

Speed rpm : 100
Minimum rack trave: 9.50
Speed rpm : 350
Rack travel in mm : 5.10...5.30

CONSTANT REGULATION

Speed rpm : 320...390

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del. quantity cm3/ : 84.5...88.5
1000 s: (82.5...90.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.10
Speed rpm : 1130...1140

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 165.0...185.0
1000 s: (161.0...189.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.10...5.30

Remarks:

: